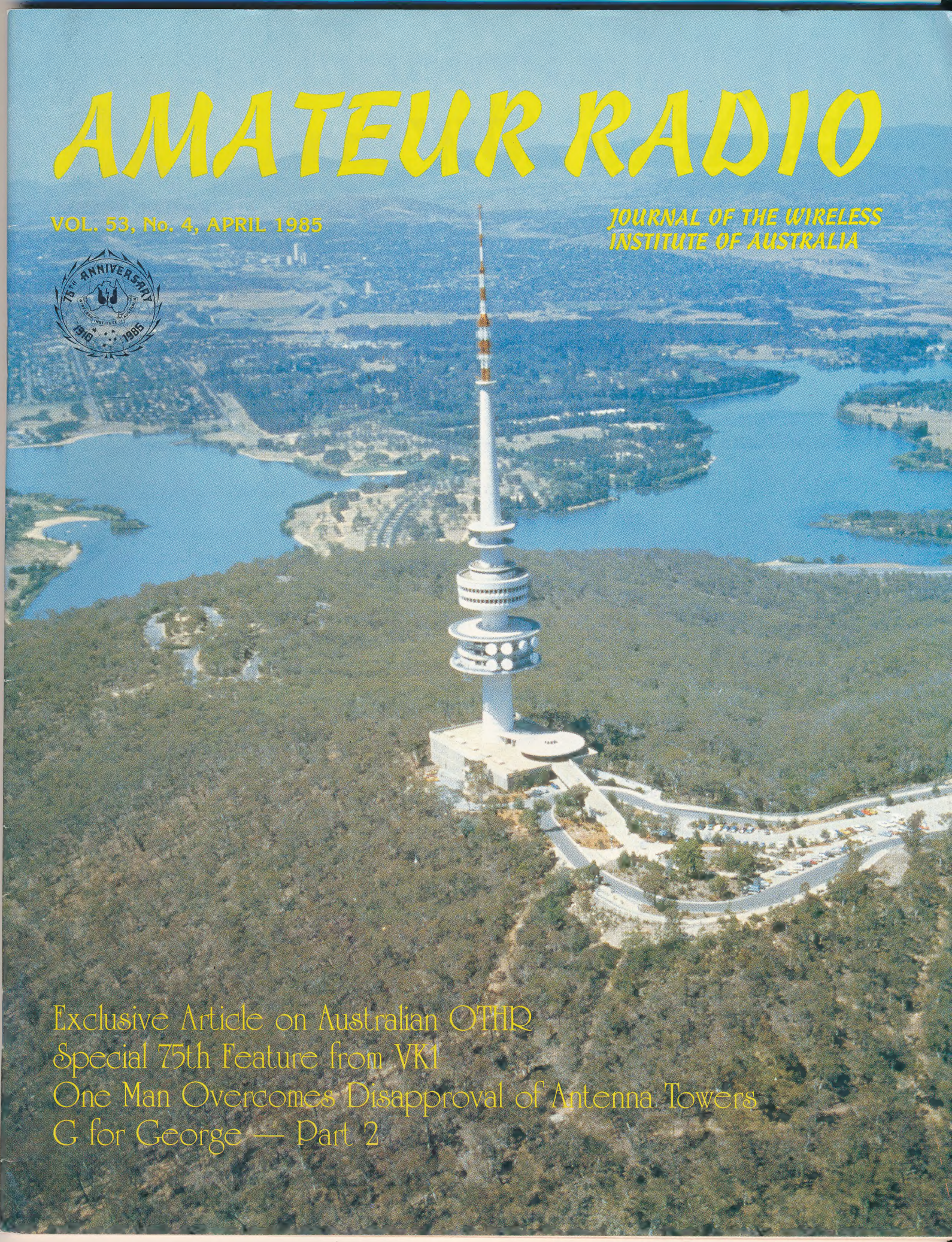
AMATEUR RADIO

VOL. 53, No. 4, APRIL 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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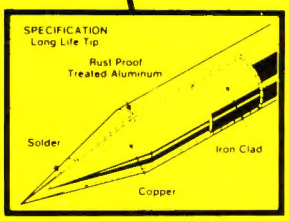

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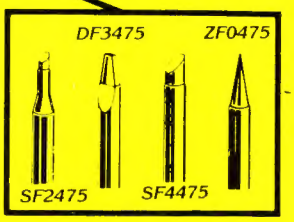

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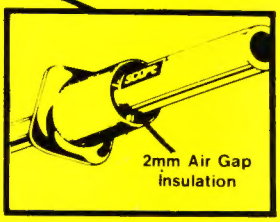

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This month, the youngest Division of the WIA, VK1, have a special feature as part of the Seventy-Fifth Anniversary Celebrations. The cover photograph shows the Black Mountain Telecommunications Tower. Turn to page 35 for full details of this working landmark.

AMATEUR RADIO

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Victoria Learns a Lesson or Two Early in 1985 44

This month's magazine features an exclusive article, written by Ian VK5QX, about Australian Over the Horizon Radar. Ian had to receive special dispensation with the article and explains how it works and what it is used for. Included are some marvellous colour photographs which we trust will not lose too much impact when they are printed in black and white. See p8.

It is sad to report the untimely passing of Peter VK3CIF on the 4th March. Peter was Secretary/Manager of the WIA for many years and since his retirement has contributed many titbits to the How's DX column, the most recent being in December page 46. Peter was a much travelled man and held many call signs. Deepest sympathy is extended to Peter's wife, Barbara, and children.

DEADLINE

All copy for June 1985 AR (including Hamads, columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd April 1985.

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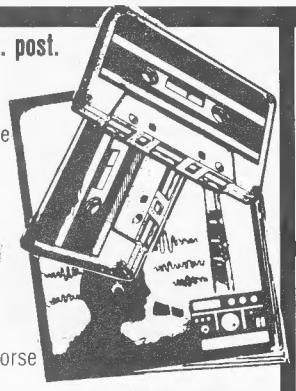

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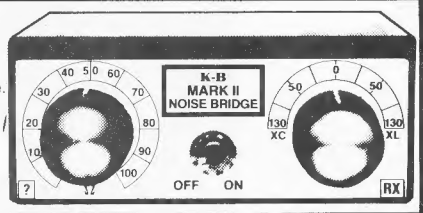

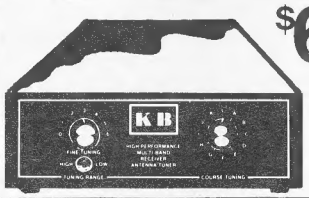

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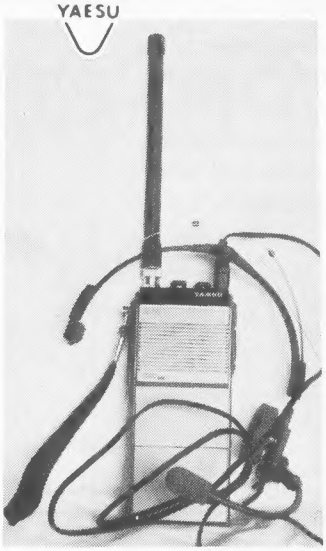

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a word from your EDITOR

CRYSTAL BALL

We have looked briefly at the radio world in 1910, the year of our Institute's foundation. We have touched lightly on the tremendous expansion of radio and electronics up to this, our 75th Anniversary Year. Now, in this historical light, can we guess what may evolve over the next 75 years.

Many have tried to foretell the future, before and since Tennyson wrote, over a hundred years ago, "*For I dipt into the future, far as human eye could see . . .*". Some have been remarkably successful. Arthur C. Clarke in 1945, before transistors or any but extremely sub-orbital rockets, suggested the geo-synchronous communications satellite. Forty years later, the world's communications largely depend on such satellites. Real-time international colour TV, complex computers exchanging data at incredible speeds, Smith chatting to Jones 3 continents away. Parking space 36,000 km above the Equator is the most valuable real estate "off Earth".

By 2060, we may expect space travel within the Solar System to be frequent, if not scheduled. There will be a flourishing human community on the Moon, and space stations in many orbits in between, serving all kinds of constructional and technological purposes. There may be a colony on Mars, and we may have begun to cool the climate of Venus. Communication with intelligent life elsewhere in the Cosmos may be a reality. Instantaneous electronic translation will have unified languages. Nuclear fusion will be the major source of energy for all, and the problem of radio-active waste will have been solved.

But all of this may never be, unless, as Tennyson hopefully proclaimed, "*. . . the war drums throbbed no longer, and the battle flags were furled. In the Parliament of Man, the Federation of the World.*" The terrible alternative is that because of national misunderstanding, jealously and hate, the human race may have obliterated itself in nuclear war.

We, the radio amateurs of the world, may well play a key part in saving this planet from destruction. Unique among communicators, we are ordinary citizens of all countries, able at will to reveal ourselves to each other as sharing the same interests and aspirations and a common humanity. May we hope that there will never be a 150th anniversary of the WIA as a sovereign national body, but that by then a fully international World Society will have united the interests of all mankind.

In the meantime, all Australians amateurs should be members of the WIA. In every aspect, nations must reflect the wishes of *all* their people, before a global society can unite all nations. There may be a future for "lone voices", but not when they are "crying in the wilderness". Most of you, reading this, are members. But if not, join us and play your part in the Federation of the World!

Bill Rice VK3ABP
Editor
AR

QSP

WHAT IS A RADIO AMATEUR?

This is a very difficult question and after serving two years as the Divisional President for VK1 I am still unable to answer it.

From one end of the spectrum of amateur radio we have the amateur who spends a considerable amount of time and money building and experimenting with equipment. At the other end we have the amateur who gains enjoyment from his hobby by chatting with amateur friends, either within Australia or overseas.

There are many facets of amateur radio — CW, VHF, HF, RTTY, Contesting, Seeking Awards, ATV — to name but a few. No matter which part we enjoy we should always be aware of our fellow amateurs point of view.

With our hobby we claim we can communicate all over the world but *do we communicate*? I think not!

There have been times when differences of opinion on various subjects have arisen between amateurs which, with better communication between them, could have been solved amicably.

Let us therefore — in our 75th Anniversary Year — resolve to communicate points of view within Clubs, Groups or Divisional Council, instead of complaining when decisions are made.

Without communication the many volunteers who work untiringly for your benefit in the hobby cannot be expected to perform as you would like.

COMMUNICATE AND BE HEARD!!

Alan Hawes VK1KAL
President VK1 Division
AR

CONGRATULATIONS RECEIVED

A cable has been received from JARL wishing the WIA well for the 75th Anniversary of its founding. The cable reads:

On the occasion of the 75th Anniversary of the founding of the Wireless Institute of Australia, I wish to express our heartiest congratulations on behalf of the JARL with best wishes for the success of the celebration and all other events.

Shozo Hara,
President of JARL.

WIA Seventy Fifth Anniversary News

BOOK PACKS

As announced in the March issue of AR, the Institute is making Book Packs available for presentation to school libraries.

Since the announcement in March the VK2 WIA Education Service has joined with the Federal body and as a result of this we are combining resources and are now in a position to offer a third book pack for $15 which will enable smaller clubs to participate in this scheme.

As 1985 has been proclaimed the Year of Youth, an event which is sure to gain more attention than World Communications Year, what better time to bring our pastime to the attention of the youth of Australia.

We would encourage you to get together and make a presentation pack of books on our hobby available to your local school or college.

SEVENTY FIFTH SUBSCRIPTION RENEWALS

As announced in the January issue of Amateur Radio on page 5, find below the second listing of members who have qualified for the gift packs and draw.

D Gibson VK1DG, K Pyett VK1NDK, D Thorne VK7MR, J Oliver VK7JO, J Davis VK7OW, B Wilson, VK8UW, S McNamara VK5ZH, C Judd VK5HQ, K Lord VK5NKN, D Shinkfield VK5BDS, D Robb VK5NDX, J Andersen VK5ZFO.

C Nielson L20065, B Connolly VK2BJC, P King VK2QK, J Crisp L20278, L Christensen VK2BLZ, A May VK2DHF, G Oates VK2DJA, G McLeod VK2FF, M Gunning VK2XAV, D Foster VK2VE, B Wade VK2AXI, P Maloney VK2AXU, N Cosby VK2ZBT, M Austin VK3DPG, R Magilton VK3DRC, D McManus VK3NG, P Lee L30172.

WGS Smith L30550, K Benson VK3ZGX, M Dods VK3ACX, J Martin VK3DEK, N White VK3NZ, P Milne VK3BEJ, C Baker VK3BXS, B Boyce L30425, A Woodward VK3BCI, G Eves VK4JGE, V Lamprecht VK4MK, A Kearney VK4UH, M Downing VK4FX, G Cullen VK4NNA, G Dew VK4BOG, C Everdell VK4ZAO, K Aumann VK4NKR, L Buchbinder L60118.

W McGeogh VK6WL, J Lampert L60266, Mrs P Bradshaw VK6YF, J Sime VK6HN.

The Seventy Fifth Anniversary Sub-Committee, at its meeting in the Federal Office on the evening of the 21st February, supervised the selection of the draw for the Citizen Quartz Clocks and the recipients are listed below.

RW Elliot VK1ZAH, G McLeod VK2FF, FW Tom VK2TAM, J Martin VK3DEK, AL Ward VK3DAW, C Everdell VK4ZAO, J Jones VK4QP, HR Hodgson VK5AP, K Lord VK5NKH, P Bradshaw VK6YF, FA Page L60354 and J Oliver VK7JO

The clocks and gift packs will be dispatched to the members listed shortly.

FEDERAL SEVENTY FIFTH ANNIVERSARY DINNER

This function, as previously announced in earlier editions of AR, will be held at the Southern Cross Hotel in Melbourne.

Mr Richard E Butler, Secretary General of the International Telecommunication Union, has confirmed with the Federal Secretary that he will be attending. As many members will be aware, Dick Butler is an Australian holding this high ranking position in Geneva.

Other personalities have also indicated agreement to attend.

Members are again reminded that any who wish to attend this function should register their interest with the Federal Secretary. Again to remind you, space is limited, but a percentage of tables have been reserved for members who wish to attend this important function.

For out of state members negotiations are taking place with the internal airlines to obtain concession fares for this function. Details of the result of these talks will be printed in a later edition of AR.

WARD — WORLD AMATEUR RADIO DAY

The 18th April 1985 is World Amateur Radio Day and this day is proposed as an activity day for the 10, 18 and 24MHz bands.

During this day these bands will be monitored by executive members and by your Divisions. A random selection of call signs heard on these bands during the twenty four hours will be placed in a draw for commemorative momentos.

MEMBERSHIP DRIVE REMINDER

As announced in the January edition, members are reminded that proposers of new members will receive small gifts during this anniversary year.

There is also the opportunity for each seventy fifth new member to receive a presentation clock for their shacks from the Federal Office.

Also the special limited edition Seventy Fifth Anniversary Membership Certificate is being issued to new members in this anniversary year.

AR

APRIL 1985

SUN	MON	TUE	WED	THU	FRI	SAT
	1 April Fool's Day	2	3 10th Clipperton DX Dve til 10th	4 Narassa DX Dve VK4 School Hols	5 Good Friday	GARTG SSTV Test Easter Saturday Jewish Passover — Festival to 13th Polish CW?
7 GARTG SSTV Test	8 Easter Monday	9 Easter Tuesday	10 Croatian National Day	11	12 VK5 Clubs Convention	VK5 Clubs Convention Moorabbin & Dist RC Trade Day VK2 Conference Clubs Annual Fireworks — Dural
14 VK5 Clubs Convention VK2 Conference Clubs Orthodox Easter Icom Day	15 VK4 School Hols end	16 VK6 AGM	17	18 World AR Day	19	20 ARCI QRP SSB Test VIGO World Fish Test
21 ARCI QRP SSB Test VIGO World Fish Test Queen Elizabeth II born 1926	22	23 VK5 AGM St George's Day Shakespeare Born — 1564-1616	24 AR Copy Deadline	25 ANZAC Day	26 Annual Convention Dayton Hamvention — USA	Annual Convention Dayton Hamvention — USA Westlakes ARC 21st B'day
28 Annual Convention KARL 30th Anniversary Dayton Hamvention — USA	29 Cook in Botany Bay — 1770	30 Dutch Festival Day Queen Juliana's B'day		Dates correct at time of printing.		

CHRISTMAS ISLAND

Dennis Hardie VK9XZ/VK6CZ
Box 99, Christmas Island, WA. 6798

Christmas Island is a small island in the Indian Ocean at 105.6 degrees east by 10.5 degrees south and is about 2300 km NNE of Perth, WA. The Island was sighted in 1643 on Christmas Day by Captain William Mynors of the East India Company. A party from the Cygnet is reported to have landed in 1688. Later, members of the Clunies Ross family visited the island to cut timber for boat building.

L to R: Charles VK9ZAB, Dane VK9XD, Ron VK9XA, Tony VK6ATI, Ron VK9XJ, Lindsay VK6LJ. Front: Craig VK9XW and Dennis VK9XZ.

In 1887 an expedition from HM Egeria collected the first phosphate specimens. Then in 1888 the Island was annexed by Captain W H May of HMS Imperieuse as part of the British Dominions and placed under the supervision of the Straits Settlement's Government for administrative purposes. Later a small settlement was established by Mr Clunies Ross and in 1891 he and Sir John Murray were granted a 99 year lease of the Island. The lease was transferred to the Christmas Island Phosphate Company Limited, with Murray as chairman and shares divided between the Clunies Ross and Murray families. In 1900 the Island was incorporated with the Settlement of Singapore and Chinese phosphate workers were recruited to the Island. In 1919 the railroad across the Island's central plateau to phosphate deposits in the south was completed.

The Island was occupied by the Japanese from 1942 to 1945. They were unsuccessful in their attempts to export phosphate during the war years. In 1949 the British Phosphate Commissioners became the managing agents for the Christmas Island Phosphate Commission, a joint enterprise of the Australian and New Zealand Governments.

On 1 January 1958 the Island was gazetted a British Crown Colony then finally on 1 October 1958 it became an external Territory of the Commonwealth of Australia. On 24 June 1981 the Phosphate Mining Company of Christmas Island Limited, a company with limited liability with the Australian Government being the only shareholder, became the successor organisation to the British Phosphate Commissioners.

Lastly and most importantly on 27 November 1984 Christmas Island saw its most significant achievement — the greatest number of amateur radio operators ever on the Island at any one time. For quite some time there had been three operators, Craig VK9XW, Dane VK9XD and Ron VK9XA then Charles passed his exam to become VK9ZAB. November was to see the arrival of two more amateurs who were to work for the mining company. They were Dennis VK9XZ and Ron VK9XJ but on the day that Ron arrived there was a surprise. Tony VK6ATI had been on the Island for a week and the pilot of the Airlines of Western Australia F28 was Lindsay VK6LJ which made a total of eight amateurs on the Island, for a short time anyway.

Since the arrival of the two new amateurs there has been an increase in activity on air, especially to the mainland, however the conditions are a little primitive at the moment as all are operating off 80 metre dipoles through antenna tuning units. In the near future there should be a dramatic improvement as towers are under construction which will mean that better signals will be heard from this beautiful tropical island in the Indian Ocean. If you hear Christmas Island then please call in, we will try to give as many people as possible a QSL card from VK9X. **AR**

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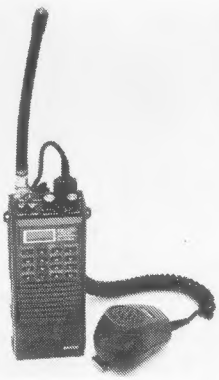

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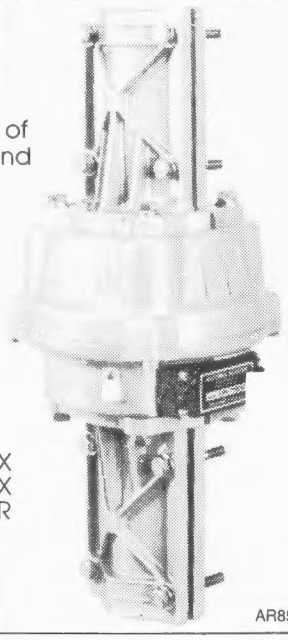

OPEN SATURDAY MORNINGS

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AR85

HIGH FREQUENCY RADAR AND THE AUSTRALIAN AMATEUR RADIO OPERATOR

Ian Hunt,

Electronics Research Laboratories,
Defence Science & Technology Organisation,
Department of Defence,
Box 2151, Adelaide, SA 5000.

All amateur radio operators are conversant with the term 'propagation' and most of them have some understanding of the subject. It is likely that candidates for amateur radio certificate examinations will encounter questions designed to ensure some knowledge of radio propagation. This knowledge may at first be small, but when an operator expands their interests into more serious aspects of communicating and experimentation they find that a more detailed study of what propagation is about can help. Such an understanding can make all the difference between success and failure.

Many amateur radio magazines regularly publish predictions for 'ionospheric propagation' for various paths of interest. These refer to the expected way in which radio signals will travel via the ionosphere to be reflected or refracted so as to return to the surface of the earth at the location desired. The predictions which appear in Amateur Radio magazine are provided on the basis of data gathered by the Ionospheric Prediction Service here in Australia. This service is provided by the Commonwealth Department of Science with its headquarters located in Sydney. The service even provides up-to-date information in the form of recorded announcements on a Sydney telephone number. The American National Bureau of Standards provides a similar service via their Time and Frequency Standard stations WWV and WWVH which operate continuously in the high frequency portions of the radio spectrum.

As one learns about propagation and how it occurs it becomes apparent that radio signals can be reflected from various objects and under varying conditions and that sometimes rather strange effects may be noted. For many years amateur radio operators, and particularly professional scientists have studied these effects both to increase knowledge and to use the effects to good purpose. Most people are aware of the use of reflected radio signals for the purpose of 'radar'. The most obvious uses are the tracking and positioning of aircraft for safety purposes, the location of other ships at sea so as to avoid collision and even the rather unpopular use of the effect to detect speeding drivers. Most of these uses involve frequencies in the higher UHF and microwave regions of the spectrum.

At high frequency, particularly on those bands regarded as best for DX operating, we soon discover that the method whereby our signals travel to distant parts of the earth is rather complex. We begin to hear terms such as Sunspot Number and Eleven Year Cycle. Enquiries soon elicit the fact that these terms refer to the effects which the sun has upon those layers of the earth's atmosphere known as the ionosphere. Around the earth, at varying heights ranging from 80 to 800 kilometres are layers of atmosphere which become ionised due to the effects of ultraviolet radiation from the sun. These layers are fairly well defined and each has a central region of relatively dense ionisation with density tapering off both above and below.

It is not the intention of this article to give a detailed description of how the ionospheric layers work. Suffice to say that the subject is very interesting. Much can be learnt about the ionosphere by reference to handbooks such as the ARRL Handbook and by reading back issues of Amateur Radio, QST etc, and reference to learned papers presented in various widely available scientific journals.

It will be sufficient, although a simplified approach, to regard the ionosphere as a large mirror which reflects radio signals. The reflecting capability of this mirror does not remain as stable as we perhaps would like and this leads to a number of problems when it comes to the ability to bounce a constant signal off this distant mirror back down to the earth's surface. Much experimentation has been conducted over the years addressed to these problems. The references at the end of this article will give the reader some insight as to the nature of these experiments. As a result it has been discovered that the ionosphere as a reflecting medium is suitable for radar work at High Frequencies. For example, the author was some years ago involved in the operation of a sounder which swept through most of the frequencies in the HF portion of the spectrum and made continuous measurements, on virtually a twenty-four hour basis, for a period of eighteen months. The transmitting equipment for this experiment was located in the north of South Australia and the receiving gear located at Broome on the north-west coast of Western Australia. The system employed used low power and very narrow bandwidths and was such that other users of the HF spectrum either were not aware of its existence or would not be troubled by the momentary appearance of the signal as it passed by the frequency they were using. This ionospheric sounder was one of many which have operated continually all over the world gathering various types of information as to just what our somewhat fluid reflecting mirror is doing. Work to develop radar systems using the HF portion of the spectrum is of great interest to the scientific and military sectors of many nations as such systems have a great potential for surveillance of wide areas of land and sea at great distance. Further comments on this will be provided later in this article.

Any operator who has used HF receiving equipment for a reasonable time will have encountered, what has been dubbed by amateurs as, the 'Russian Woodpecker'. This nickname for a most objectionable interfering signal describes well the harsh repetitive tapping sound produced by the signal which emanates from one of apparently several installations at which HF Radar experiments are being conducted by the USSR. You may wonder why it is that you hear such signals here in Australia so distant from their source. This may be because such radar systems are intended to be capable of seeing objects at such large distances. The nature of the radars referred to earlier, working at UHF and above, is such that detection can only be carried out over a fairly short range (ie to the horizon) despite the use of high power and large high-gain antenna arrays and dishes at those frequencies. In connection with the HF radars in use the terms Over-The-Horizon-Radar (OTHR) and Over-Horizon-Detection (OHD) have come into common use.

Following the World Administrative Radio Conference (WARC) held in 1979 the Wireless Institute of Australia Representatives reporting on the Conference to the Annual Federal Convention of the WIA, in Melbourne referred to the Russian Woodpecker. Complaints have been formally made by various nations through WARC procedures and the USSR delegation replied to the effect that the signals complained of were simply those produced by a system studying ionospheric propagation. Other countries were stated as being involved in similar experiments and the USSR intended to continue these scientific investigations until such time as it no longer saw the need.

It is no particular secret that some other countries have in fact been carrying out studies for the development of Over-Horizon-Radars, however it certainly does not seem that experiments by these other countries, included amongst which are our own country, Australia, as well as the USA and the United Kingdom, have created any interference along the same lines and to the same extent has occurred with the very much disliked 'Russian Woodpecker'.

Here in Australia we have only one OTHR Facility. This is located in two sections, for fairly obvious technical reasons. Both are in the general area of Alice Springs in the Northern Territory. The receiving site is in an area known as Mount Everard and fairly close to Alice Springs with the transmitter site at the location of Harts Range some 100 kilometres to the north east. Separation of the sites in this manner overcomes the difficulties of having sensitive receiving equipment close to powerful transmitters.

An extremely good description as to just what was being done in the USA in this field was provided in an article by O G Villard published in QST magazine for April 1980. In general the description of the methods used by the USA explained in that article also applies to the methods adopted by Australia particularly in regard to interference to other services.

I well remember the subject of interference from the Russian OTHR being discussed at a Federal

Convention of the WIA. One theory was put forward that by placing your amateur transmitter on the frequency where the signal appeared to be loudest and keying your signal on and off at the same rate as the pulsing 'Woodpecker' signal you could cause interference to the radar receiver and thus cause the operators of the 'Woodpecker' to change to another frequency. However this suggestion was not accepted as a recommended practice as reason fortunately prevailed. Anyone familiar with signal processing methods in use today would realise almost immediately that with advanced modern techniques such interference could often be easily discerned and separated from the required signal. It was also pointed out that it was not a good approach to try and fight pollution with pollution. The situation could easily exist where, even though the 'Woodpecker' interfered with you, it might not do so to some other operator some distance away. Your deliberate interference could however in turn present a problem for him where otherwise he would have no trouble. So, we should stop and think carefully about what we are doing. However back to the matter of our own OTHR.

The Australian OTHR project was given the name Jindalee and was announced by the then Minister for Defence, the Honourable Lance Barnard MP, on 11th April 1974. Around 1978 the first (Stage A) portion of the project was completed. This stage had proved the approach adopted and had successfully tracked such targets as commercial aircraft flying along the air route from Singapore. Much data was also collected from associated experiments on the various conditions of the ionosphere.

Following this encouraging success the project was then expanded (Stage B) and a much larger receiving antenna array was installed which has the capability of beam steering. Such an antenna system is certainly spectacular to see as it comprises a total 486 pairs of broadband monopole antennas with each pair phased and sitting on top of a very large ground mat. This receiving array stretches over a distance of 2.8 kilometres.

The pairs of monopoles (or aerial elements) feed via very high quality coaxial cables to underground bunkers where, groups of elements can be controlled through sets of many relays which switch in and out additional phasing lengths of cable. With all this controlled by computers it can be imagined the complexity required to provide the switching and phasing apparatus to be able to steer the radar receiving beam to aim in the direction necessary to receive a particular reflected signal. The cables and switching equipment are installed underground as this approach undoubtedly assists in stabilising the system temperature. Also running cables and placing equipment underground improves the shielding of equipment and thus produces an advantage both regarding normal reception and pick up of unwanted signals. The signals which are received are generally at very low level. This is understandable since the wanted signals are those sent out by the transmitter, reflected by the ionosphere back to earth at a distance of perhaps 3000 kilometres away and then scattered again from the earth's surface or target object to arrive back at the receiver site again via the ionosphere. These signals are called Back-scatter signals and from this comes another term also used to describe the radar, that being an Over-The-Horizon, Backscatter System. (OTHB).

The power output of the transmitter located at Harts Range is not officially disclosed, although one publication has given it as being in the order of 400 kilowatts. This transmitter feeds into an array of vertically polarised log periodic antennas. These antennas, like those at the receiver site, are aimed generally north-west, the beam being again steerable in azimuth. The transmitted signal covers an area dependent upon the height of the ionosphere and the frequency in use. Transmitter parameters can be altered by control from the receiving site. VHF links are provided between the transmitting and receiving sites for control purposes. The system allows the receiving beam to be steered so as to only receive or look at signals coming back from a small sector of the area being illuminated by the transmitter. The area under total surveillance illuminated by the transmitter is known as the radar 'footprint'.

Jindalee Receive Array.

A close-up view of the Jindalee Receive Array.

While all the action described above is going on, the received signals and the data they contain are being analysed by the powerful computers associated with the receiving site. Frequency shifts on the returned signals caused by targets which are moving are known as doppler shifts, and the amount of shift gives an indication of the radial speed of the target. Thus the return signal and its shift for a large and fast commercial aircraft will be fairly easily detected as against the return from a small ship or other surface vehicle.

To make the most effective use of the ionosphere a backscatter sounder examines the HF spectrum continuously to determine the state of propagation conditions and from the information thus obtained to decide the best operating frequency for the

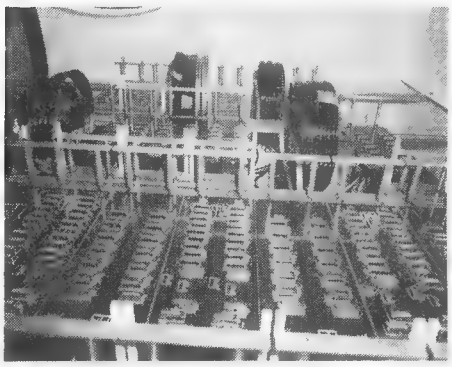
Entrance to an underground bunker.

transmitter. Concurrently a frequency surveillance system provides a continuous monitor of HF spectrum occupancy. This system ensures that interference is not suffered by other users, as the transmitter is barred from operating on any occupied channel. The computer systems also contain information of other frequencies on which it is required that the transmitter must not operate. I can state with certainty that such frequencies include the whole of the HF amateur radio bands. This fact, as well as the information so far given, should make it obvious that statements that OTHR signals emanating from the Jindalee system are observed in the amateur bands would be ill advised, alarmist and irresponsible in nature. The same can be said of such uninformed comment referring to 'portable' Jindalee systems. Many experiments, such as those conducted with the Jindalee system, and other projects associated with ionospheric studies which employ wide frequency ranging equipments in the HF region have been carried out and in fact produced very little, if any, harmful interference over many years. Most programmes of this nature are sponsored or carried out by Government organisations and Universities. Such agencies, particularly in the Western world, would be very sensitive to any suggestions that they were likely to cause any interference to essential and emergency services operating anywhere in the radio spectrum let alone on internationally allocated HF portions of the spectrum.

The modulation system for Jindalee is such that it does not provide rapid rise and fall times with pulses as does the 'Woodpecker'. It would seem unlikely that an observer would confuse one with the other. I have heard of no word of complaint from any amateur radio sources about Jindalee operations to date during either Stage A or Stage B.

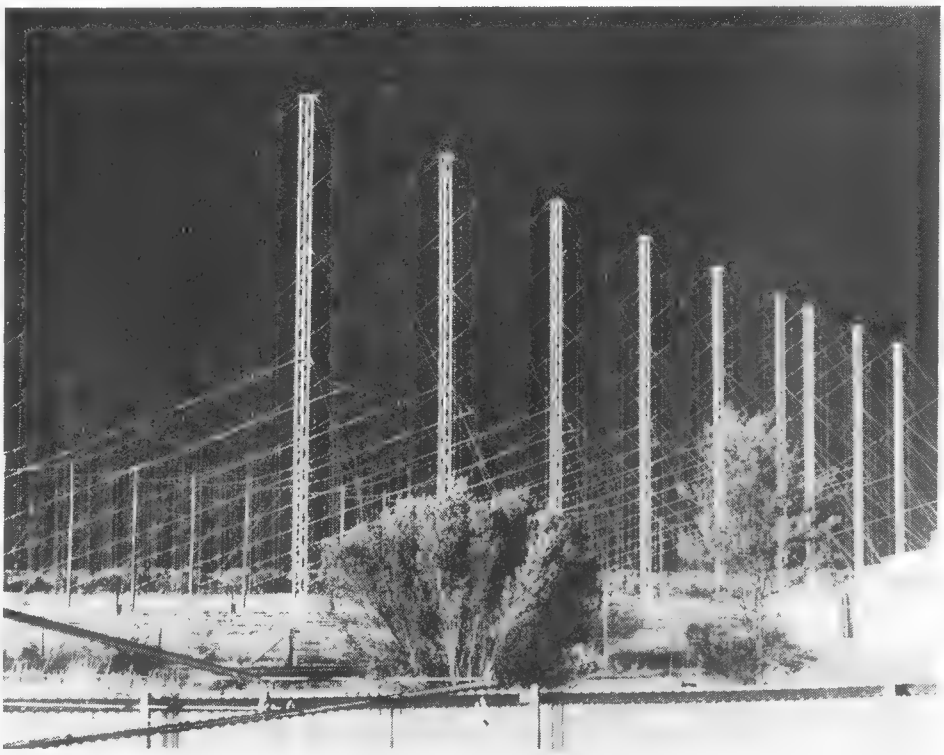
Many of the uses of OTHR would seem to be associated with defence work, however there are probably other benefits which can be realised. Surveillance is not only necessary for military purposes. Observation of aircraft on commercial routes can be of great importance from a safety point of view. Very early in the development of the Jindalee concept, referring to a watch on our Australian coastline, the possibility was suggested of detecting unauthorised flights such as by drug-runners crossing our shores by aircraft and landing on small hidden or disused strips.

Another aspect of great interest is the fact that waves travelling on the surface of the ocean can be detected by such radar systems. This could assist with the safety of shipping and also in connection with the detection and tracking of tropical "lows" and cyclones. An increase in the knowledge of the characteristics of the ionosphere and its behaviour resulting from the associated experiments could be of benefit to all who use radio for long haul communication. The techniques involved in dealing with detection of small signals and other problems such as cross-modulation free front ends for sensitive receiving gear as well as the use of broadband radiators and active receiving antennas are other spinoffs which can benefit our society, including amateurs, in many ways. Computers are playing an ever increasing part in the handling of our communication systems and in controlling the units which we use even in the amateur radio shack, so more information may become available to assist in updating and improving our technology in general.



Relays and Phasing Cables in Bunker.

In conclusion just a little more information regarding our own Australian OTHR Jindalee. The design and development of the system has been mainly carried out by the Electronics Research Laboratory which forms part of the Defence Research Centre, located at Salisbury, South Australia. It is rather interesting to note that from its inception there have been a number of workers who are also amateur radio operators on the project technical team. I am sure that in their own way they have made a useful contribution to this project and at the same time have gathered knowledge which they have put into practice in their pursuit of our hobby. Much of this knowledge will be passed on to others of our fraternity. Also, this project has, to a very large extent, made use of Australian industry and materials locally available.



The Transmitting Aerials.

I am indebted first of all to the Superintendent of Radar Division, Mr Lester Soden for his advice and encouragement in the preparation of this article. I wish to acknowledge the benefit of being able to talk in general with various professional and technical officers (who I regard as both friends and colleagues) with whom I have been associated both in connection with Project Jindalee as well as some of the preliminary projects and other activities far removed from this field.

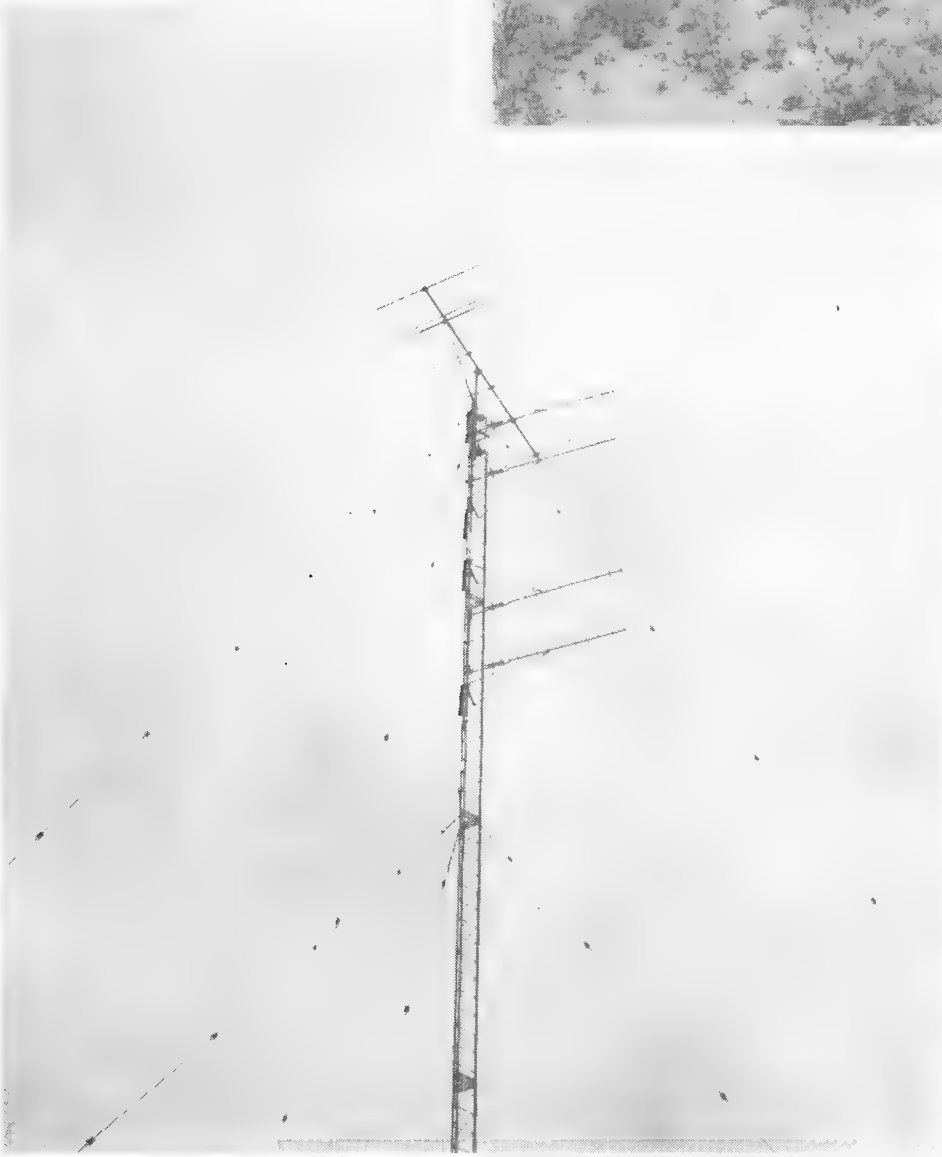
Approval by the Director of the Electronics Research Laboratory, Defence Research Centre, Salisbury for publication of this article is acknowledged.

Should readers wish to view a video-tape which provides a good background to better understanding of Project Jindalee I am sure that the WIA Federal Videotape Co-ordinator would be very pleased to accept requests for a copy of the videotaped lecture which was given to a Divisional monthly meeting of the South Australian Division of the WIA by a member of the Jindalee Team from the Electronics Research Laboratory.

I trust that this article has perhaps given a small insight into just what is occurring in the field of High Frequency Radar in Australia and that it will also allay some of the unnecessary fears about its impact upon amateur radio activities. I must however add that, as there are a number of aspects associated with Project Jindalee which are classified for reasons of national security, I would not be prepared to enter into a discussion of the subject on the air via amateur radio. Should readers wish to ask questions of a reasonable nature I would be prepared to receive any letters and endeavour to reply in writing as and when time and need permit.

Transmitting Station and Antennas.

Transmitters.



VHF Antennas Provide the Links Between Stations.

Phasing Cables in the Bunker.

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ABOUT THE AUTHOR

Ian J Hunt VK5QX has held an amateur licence for 26 years. His previous callsign was VK3ZX. He is an Honorary Life Member of the Wireless Institute of Australia and has served on both the Victorian and South Australian Divisional Councils. He is a Past President of the South Australian Division and was also a Federal Councillor. He is a keen contest operator and DXer. Ian says that he is only five countries off having worked 300 on one band, one mode since 1981. He has been employed by the Federal Government since 1954 following service in The Royal Australian Signal Corps. He was stationed at Woomera for a period of seven years and whilst there worked at the NASA Satellite Tracking and Data Acquisition Network Station at Island Lagoon as well as at the Missile Range where he was involved in Telemetry work. He is currently a Technical Officer and employed with the Electronics Research Laboratory, Defence Research Centre, Salisbury, South Australia.

AR

THE VK6NMS HALO

(A 1 wavelength loop)

© 1984
"Rev", VK6NMS,
Box 261, Mandurah WA 6210

I am prepared to wait for my harp, but I thought I would try to make a halo for myself that could be used until (if ever) I qualify for a smaller, made-to-fit variety.

SHAPE SELECTION

There is common accord that the best shape for a loop antenna is the one that encloses the greatest area for a given perimeter. The practicalities of construction limit the number of possible shapes to several simple geometric figures.

If we take a perimeter of 10 metres we find that an equilateral triangle embraces 5 square metres, a square 6 square metres and a circle 8 square metres. Expressed in ratios this is 1, 1.2, and 1.6 as illustrated Fig 1.

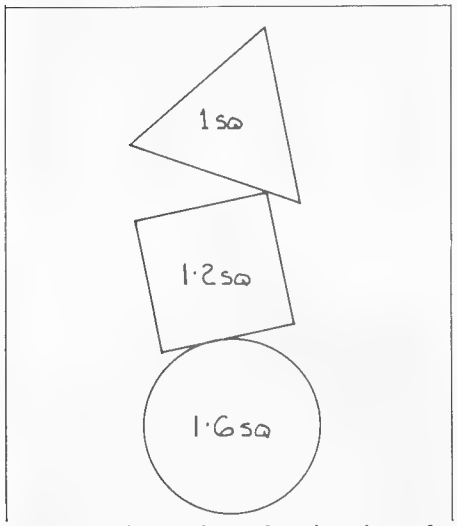


Figure 1 — Comparison of enclosed area for different shapes with the same circumference.

Delta loops and quads have their devotees whose signals boom around the world in cascading cacophony, but why can't a purist have a "halo".

DESIGN DETAILS

You could do as I did and read a text and follow the formulae. For 28 MHz the appropriate sizes are:

Reflector 11.0 m
Driven ele. 10.68 m
Spacing 1.3 to 1.5 m

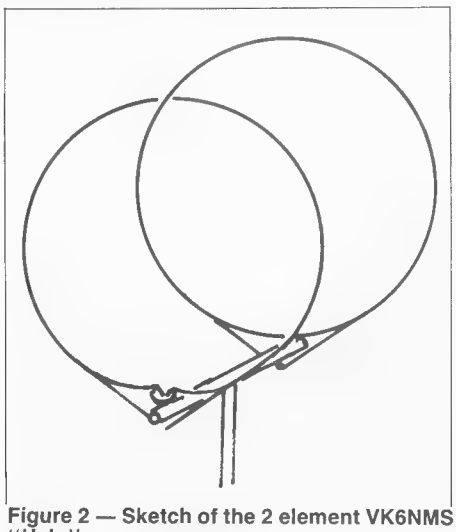
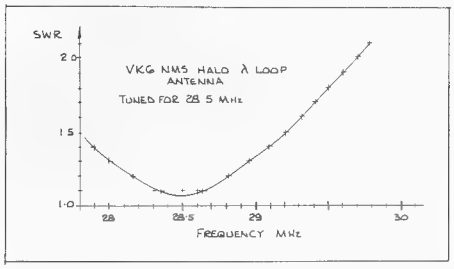


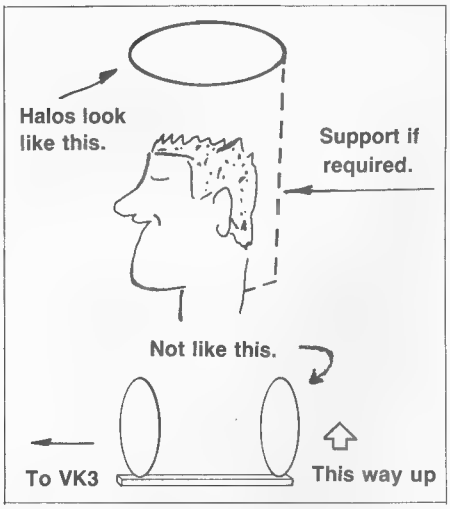
Figure 2 — Sketch of the 2 element VK6NMS "Halo".



CONSTRUCTION DETAILS

Deltas and quads can use wire elements supported by straight lengths of fibre-glass rod but the construction of a wire loop needs a different approach. My solution involves bending two glass-reinforced plastic (fibre-glass) fishing rod blanks and placing the wire elements inside the blanks.

The longest fishing rods I could find were 6.4 m long telescoping blanks, known by name as "Shakespeare" and "Wonderpole". They were obtained locally for $23 each.



The thinner ends of the blanks were joined together and the wire threaded through. The wire element's ends were brought out through small holes about 0.5 m from the large ends.

The large ends were butt-opposed and fitted into a .91 m length of 50 mm waterpipe which had been bent to an angle of 100 degrees. Silicone filler was used to cushion and hold the butts.

The wire ends of the reflector were joined and a 1:1 balun used to connect the driven element to 50 ohm coax.

Now assuming you have followed my method you would be ready to hang the loops off your boom and, as they say in the bush. "Bob's yer quagmire". But why hang it? Why not stand it on the boom? This gives some extra height. If you go mobile this is important — but watch out, you could swallow every truck on the Nullarbor.

(Tech Ed's Note: The "halo" antenna is traditionally a horizontal half-wave dipole, bent to form a circle with the ends mechanically constrained by an insulator. It is often used on 52 MHz and 144 MHz and occasionally on 28 MHz as an omni-directional antenna. A gamma match is generally used to match to 50 ohms.)

AR

TALKING ROPE THAT COULD SAVE LIVES

A mountaineering rope that carries an integral communications cable has been developed by a British manufacturer.

The Elite Contact 2000 talking rope system utilises a climbing rope, tested to 2200 kg, in which is a spirally coiled cable, allowing it to be stretched, knotted and shocked loaded without loss of transmission. The basic system consists of two individuals linked together via the rope. Each man wears a throat microphone and a hardhat with a built-in headset. Communication is possible up to 4 km.

From New Technology in Britain

AR

PORTABLE AROUND SYDNEY

or how to promote amateur radio . . .

Sam Voron VK2BVS
2 Griffith Avenue, Roseville, NSW, 2069

GOING TO THE BEACH? One table, some chairs, dipoles for 1.8 to 30MHz, Mark VK2PIX at the controls shows how it's done. A 12 volt generator to a regulator, a bag with 10amp battery as back-up (all on grass) ensure a great weekend day and night away from it all on the North Cliff side of Coogee beach overlooking Wedding Cake Island.

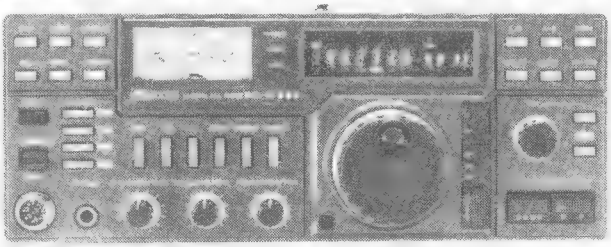
SHOPPING PLAZA PORTABLE. One day local shoppers stared with amazement at the 9.1 metres aerial mast under all that radio gear. A simple request to Bankstown Council *"Can I set up a radio display day and night for 48 hours in the middle of Bankstown Plaza?"* The answer *"Would you like us to provide 240 volts?"*

THE PUBLIC LOVE SENDING MESSAGES VIA AMATEUR RADIO. Sending greetings to friends and loved ones is a lovely way for people to come in contact with our hobby for the first time. It encourages people to learn more about the diversity of our hobby.

MESSAGE HANDING, SSTV AND BEING FRIENDLY. Were all combined outside the Grace Brothers store in the middle of Chatswood Shopping Centre to celebrate with the public "World Telecommunications Day" and activate the AX prefix from this spot for 24 hours.

Sam's Home Antennas.

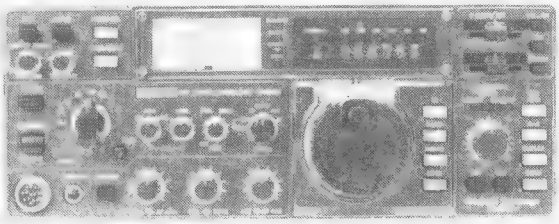
AT HOME.



All mode 2m 100 watt base
The Ultimate in two metre communications, large dynamic range receiver and a full 100 watt output combine with the microprocessor control system to give you the best in VHF performance. 32 memories, scanning, VOX, all the features you have come to expect from ICOM.

ICOM IC-271H

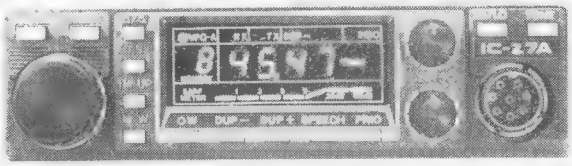
Frequency Range	144Mhz to 148Mhz all mode
Power Output	100 watts (IC-271A 25 watts)
SSB Sensitivity	Less than 0.5μV for 10 dB S + N/N
Stability	10ppm (−10 to +60 c)
Audio Power	2.0 watts



Your new work horse
An easy radio to use. The general coverage receiver, and multi step memories are a part of the system concept ICOM engineers employed when they designed the IC-745. IF shift, PBT, and a Notch filter will help you clear the air for that unique QSO. In spite of all the features built into the 745, it is very easy to use.

ICOM IC-745
Take a look at the front panel. The sensible layout is segmented into the logical control sectors ... Phew. Built in scanning will help you find that clear spot in the band, or listen for the rare voice from Verkhoyansk. Where?

ON THE ROAD.



The Fabulous IC-27A
A 25 watt mobile that will fit just about anywhere. Nine memories available are backed up by lithum battery providing approximately seven years life. Scanning and priority scanning allow you to get the best from this tiny package. As an added feature, a digital voice synthesizer is available as an option. Check it out now.

Typical Specifications

Frequency Coverage	144Mhz to 148Mhz
Power Output	25w (high) 5w (low)
Sensitivity	Less than 0.4μV for 20 dB Noise Quieting
Audio Output	2.0 watts
Size	140mm (w), 38mm (h), 177mm (d)

Check out these and other ICOM radios at your local authorised ICOM dealer.
Write for product catalogue today.

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AR85

ICOM DAY

SUNDAY APRIL 14
10am-4pm

COME ALONG AND HELP US CELEBRATE AUSTRALIA'S FIRST ICOM DAY AT GFS ELECTRONIC IMPORTS

- ★ See ICOM's latest releases
- ★ New VHF/UHF scanner
- ★ New HF transceiver
- ★ New VHF/UHF duobander
- ★ Special prices on ICOM gear for the day
- ★ IC-2A to be given away!
- ★ Demonstration of US satellite TV
- ★ Meet the staff of GFS and ICOM
- ★ Free refreshments

See it all at:

GFS ELECTRONIC IMPORTS, 17 McKEON ROAD, MITCHAM, VIC. (03) 873 3777

Fill out the registration form below for your chance at winning the door prize, an ICOM IC-2A. Present the completed form at the door on ICOM Day.

Cut here

Name.....

Address.....

Post Code..... Phone No..... Age.....

Tick where appropriate HAM☐SWL☐SCANNER USER☐MAIN BANDS USED: 1.8☐3.5☐7☐10☐14☐21☐24☐27☐28☐1.8-30☐52-144☐432☐1296☐ABOVE☐ 30-514☐LICENCE TYPE: CB☐AMATEUR☐

Call sign..... Length of time licence held..... yrs

CURRENT EQUIPMENT USED.....

AR85

THE ONE YOU'VE BEEN WAITING FOR!

The **Radio Experimenter's Handbook**, Volume 1, from Electronics Today International is 132 pages chock-full of circuits, projects to build, antennas to erect, hints and tips. It covers the field from DX listening to building radioteletype gear, from 'twilight zone' DX to VHF power amplifiers, from building a radio FAX picture decoder to designing loaded and trap dipoles.

eti

Edited by Roger Harrison, VK2ZTB, this book carries a wealth of practical, down-to-earth information useful to anyone interested in the art and science of radio. $7.95 from your newsagent or through selected electronics suppliers. It is also available by mail order through **ETI Book Sales, P.O. Box 227, Waterloo NSW 2017** (please add $1.75 post and handling when ordering by mail).

AR85

TUNED FEEDERS FOR VERSATILITY AND EFFICIENCY

Vic Joyce VK2EVJ, ex VK2AEN

After a break of 25 years the little "black boxes" appeared miraculous!! Ten bands!! and receiver too!! But ten bands called for serious antenna study. The result — the "Centre Fed Zepp" wins hands down as the only antenna to work perfectly on any frequency on any band! Not with an SWR up to 2:1 on what should be a flat line, but perfectly tuned to any chosen frequency.

To get on the air I put up a "Centre Fed Zepp" with 24m flat top and feeders approx 18m. One end was over a neighbour's tree, the other on the TV mast on the house.

The results exceeded expectations and it operated on all bands from 160m to 10m.

The tuner circuit I chose had a split-stator capacitor and tuned primary as this gives tightest coupling. I found it necessary to short all of the taps for the 10m band, probably due to the large size for 160m. The coil was wound on a former of 13mm perspex, grooved every 1/8 inch and glued in the form of a cross. While winding the corners were filled with pieces of broomstick. Pending finding suitable switches I use a banana plug and sockets on the primary and sockets only on the secondary for the tuning and the antenna. The leads are jammed into them with knitting needles! There are two each side for shorting down and another pair for the antenna feeders.

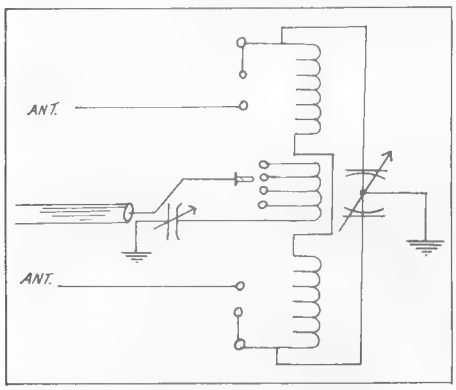


Figure 1 — Tuner Circuit Coil details: Diameter 70mm; Wire 14 gauge; Length, total 300mm; Primary 10 turns tapped at 5, 3, 2 turns; Secondary, each half 33 turns tapped at 26, 11, 7, 6, 5, 3, 2, 1.

Tuning can be very frustrating at first; especially if using clips on enamel covered wire! It is a miracle if all of the clips make contact at the same time and you have to find the tuning too. Then the performance becomes variable and you find one of the clips hot.

Proper tuning depends on the ratio of the primary to the secondary and the ratio of the antenna section to the secondary in use. It is possible to find resonance with almost any combination, but the right one will give an SWR of 1:1, good loading with stable, even broad tuning and primary and secondary tuning basically independent of each other. If the SWR meter moves on CW then you can do better! I would strongly recommend making a tuner for 160m-40m and one for 40m-10m. In fact a separate tuner could be used for each antenna and/or band and then changes can be made using a coaxial switch.

If you consider the length of the feeders as an extension of the antenna you can tell whether you have a current or voltage point at the coil.

I recently made an air wound balun 4:1 ratio and use it with a commercial ATU. To my surprise it appears more efficient than my tuner. This is probably due to even more exact matching.

THE MAST

With the above antenna only 6-8m high I had great success on CW, but couldn't get a good QSO on SSB on 20m or 40m DX. Therefore a mast was necessary! The space I had was 62ft by 50ft, so the tallest it could be was 50ft and it would have to be 12ft from the back fence. Wood was chosen for convenience of manufacture, economy and experience. I feel it proved to be a very lucky choice.

Construction consisted of 2m of 150mm x 50mm hardwood set in the ground with provision for two bolts. 6m of 100mm x 50mm Oregon for the bottom, 3.3m of 100mm x 50mm in the centre and 6m of 75mm x 50mm on top. Each piece was stepped into the next, bolted through and then 125mm x 25mm plates bolted each side. I only used two sets of guys, but it really needs three; I use two of the halyards as extra guys now

Mast joint, showing how plates were used to give them full strength.

Two pulleys were put on the back 1.5m apart in case I wanted to pull up a spike of some sort. Next time I will put a double pulley at the top front and a single one 3.3m down.

The mast was raised using the jury mast principle and some help from friends as a 12ft jury mast is a bit short to pull up a 50ft stick! Lay out the mast dressed with guys, pulleys and halyards, fix two sets of side guys to their pegs loosely, fix a 12ft stick to the base, lying on the ground at right angles and fix the back guys to it. Lift the jury mast with a rope attached to it, fix the mast to the post, put a friend on each side guy and a third on the mast itself. Now cross your fingers and start pulling! You will find it is good when it is up! Hi! The guys are steel and broken every 3m with egg insulators.

Now the mast was in my own yard and only 20m from the TV mast. I thought that probably a 24m antenna with a 4m overhang would be better than a shorter one. Feeders were 14 gauge with perspex spreaders of 13mm dia and spacing 100mm.

Well, it certainly worked OK and signals jumped 2-3"S" points everywhere!! It runs east and west and is ideal for north and south, but also constantly received outstanding signal reports from the USA on 40m CW. On 20m it has some gain to the north. *Moral — Antenna height of 50ft is dramatically better than 25ft.*

THE "CENTRE FED ZEPP" VERTICAL

I still felt it should be possible to do better to the east. My first thought was two verticals in the form of a beam, so up went a vertical on the mast itself. I was glad it was wood! The antenna is 12m long centre fed with the same type of open wire feeders, approx 18m long and pulled out at right angles for 12m. Then I started to learn something about mast and halyard loading!

I could not pull the antenna up straight against the feeders. The spreaders were changed to 6mm and spacing increased to 1m. The effect was great for both antennas and halyards, but I still could not pull the vertical straight. This was eventually solved by pulling up another pulley on the mast for a halyard to the antenna centre.

The results were amazing. On 20m first up reports were S7-9 from Europe to the USA which was impossible off the end of the horizontal antenna. On 40m reports were 1/2 "S" points better in the States although this fell off later for some unknown reason.

Notice that antenna lengths are not critical, be very careful with halyards, polypropylene appears susceptible to ultra-violet rays, so choose dark colours and heavy gauge and check frequently. I did provide a 2m fold back at each end in case I wanted to increase the effective length by pulling them out sideways. At this stage I could see it would be impossible to support another vertical from the horizontal for a beam, but there had to be some way to aim more to my many friends in the States!

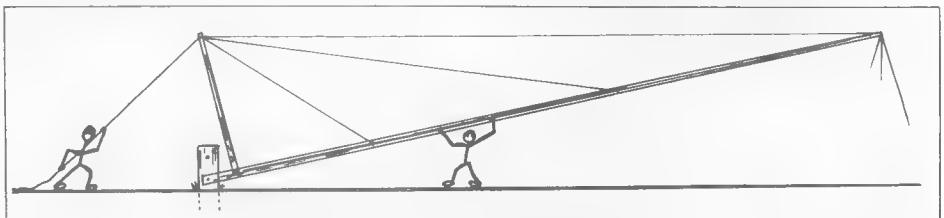


Figure 2 — The "Jury Mast" principle.

Extra pulleys on the back of the mast can be useful.

The Antenna "Farm" at VK2EVJ

THE DIAMOND QUAD

There it was — the solution to my problem — in the ARRL Antenna anthology! A 6m piece of 50mm x 50mm tied to each fence and I had supports for the sides, guys were not needed. These can be extended further with 50mm x 25mm if desired. A 4m stick was pulled up the back of the mast to gain another 2m for the peak. The antenna now looks east and is made of 14 gauge soft copper as were the open wire tuned feeders which were attached at the bottom of the diamond. Tuning was no trouble at all.

Reports indicate ½ to 1 "S" point improvement over the horizontal in the States, though it may have been better, but usually seems 2 "S" points better on receive. The most amazing thing is the very deep null to the north which is extremely convenient. Now my thoughts turn to a beam again, it must be highly possible to support another Quad from the horizontal! My next project! I think too that by using tuned feeders a quad could be reduced in size by the addition of loading coils on the sides of the diamond. This would tend to make the tuning too sharp for a constant impedance line. Possibly a 2 element rotatable quad would then be feasible for 40m!

While the quad does not compare with a 4 element Yagi at 30m the results certainly justified the comparatively small effort. It is basically a one band antenna, but probably OK for 80m. Actually my next project might be 20m and 10m elements inside the present 40m one.

AR

SHIFT LIGHT FOR MECHANICAL RTTY

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA, 5112

Those who touch type watching the print out as they type will not need this aid as they will immediately notice any failure to shift from one case to the other. However a major problem for not-so-good-typists who do need to watch the keys as they type is to always remember whether they are typing in letters or figures.

Sometime ago a RTTY friend of mine Len VK5VM alerted me to a signal light system to show carriage return, letters or figures. Len whose hearing is rather poor often did not hear the end of line bell, rigged up an indicating light so even when watching the keyboard he knew when he had reached the end of a line. For most of us poor typists with good hearing we know when a line is ending but we do need something such as a signal light system to remind us whether we are typing letters or figures.

In my case I found all I needed was one light showing when I was in figures and I will now describe this system. A micro switch or magnetic reed type switch that will operate a light when the typing carriage is in the figures position is all that is required.

A look at the "works" of your teleprinter when changing from letters to figures will indicate many spots where a switch can be mounted without interfering with normal functions. With the signal light mounted very close to or even under the keys a reasonably bright dial light or LEDs will do fine.

With my Siemens M100 I mounted a micro switch having a long lever and roller on its end on the side of the transformer cover so that the roller would be hit when the bar carrying the typing carriage lifts for figures. The transformer has a 6V winding used for the copy reading light so this is additionally connected through the micro switch to a 6.3V dial light mounted just to the right of the keyboard about 7 cm below the Baud rate window. As all is fixed to the machine proper its cover can be replaced or removed without any problems.

To use the system you just train yourself to look for the light from the corner of your eyes when typing figures or punctuation marks etc. Spend a few moments typing your call sign and you will soon get used to expecting to see the light for figures and not seeing it for letters.

A simple and very useful modification, many thanks to Len VK5VM for the original idea.

AR

SUPER RADIO!

The 1st February 1985 was yet another monumental step for radio in Australia. On this date all AM stations on the Broadcasting Band became licensed to broadcast in stereo.

Stereo AM is the most important technical development in the sixty year history of Australian radio.

Although achieving the same result — stereo broadcasting — the FM and AM modes behave differently when transmitted. FM travels in tight lines which bounce off objects like tall buildings and fly off in various directions whilst AM carries through the atmosphere in broader waves which go around obstacles, is not disrupted by solid masses and produces a continuous, strong signal.

It is necessary to have a stereo AM receiver to receive stereo which are now available however stereo AM may still be heard on mono receivers.

AR

ANOTHER CELEBRATION

The Korean Amateur Radio League are celebrating the Thirtieth Anniversary of KARL with a special ceremony on April 28th, 1985.

A special station, HL30HQ, will be operating from 25th April to 1st May, 1985. Special QSL cards will be issued to those stations who make contact with HL30HQ.

Also to promote KARL a 30th Anniversary Award will be issued to amateurs making contact with thirty HL stations during the period 1st January to 30th April, 1985.

Applications should be submitted to KARL, GPO Box 162, Seoul, Korea 100 no later than 31st August, 1985 with 8 IRCs and GCR.

Hyung Suk Song HL1CG
President of KARL

AR

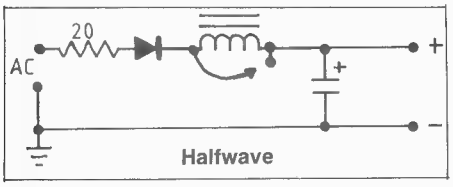
DIODE POWER SUPPLY CIRCUITS

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

I well remember the valve era with bulky heat producing rectifiers and how difficult it was to use bridge or voltage doubler circuits etc because many separate, well insulated rectifier heater windings were needed. In the present solid state era all sorts of fancy power supply circuits are now possible with very few problems indeed. Over the years I have gathered a collection of useful circuits some of which will be new to many amateurs.

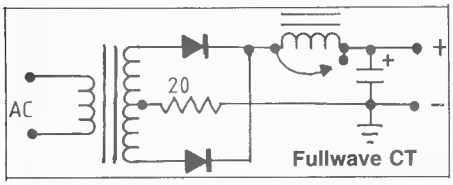
In this article I am describing medium and high voltage circuits such as are required for valve plate and screen supplies etc but of course the same circuits can be used for low voltage solid state supplies with suitable component value changes. In all the circuits shown the AC supply is 50Hz and is 250 volts except where transformers are shown and in this case the secondary windings are 300 volts each side of the centre tap. The rectifiers are 1000V PIV 1 amp types and all electrolytics are 33 microfarad 500V. Where electrolytics are shown connected in series to increase voltage ratings the resistors shown across them are 470k. The 20 ohm resistor is not an exact calculated value and normally will not be required if the secondary of the transformer supplying the AC has a reasonable amount of DC resistance. This 20 ohms resistance is a typical value where such a resistance is actually required for medium or high voltage supplies.

Looking at the circuits you will note that the first three show a filter choke that can be shorted out to make the filter capacitive input instead of inductive input, the reason for this is as follows. When the voltage obtained with capacitive input is too high it is often handy to use a filter choke rather than a resistor voltage drop to reduce output to the required lower voltage. The choke will decrease the voltage without any appreciable power loss and may often be preferable to a large power wasting, heat producing resistor. The choke shown is 10 H 250mA and 140 ohms. With each circuit I will give some approximate DC output voltage readings at different load values and these readings will give you a chance to compare the efficiency of each circuit. Now let's deal with each circuit in turn.



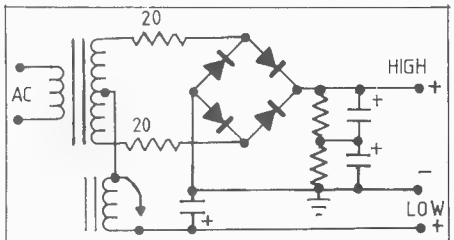
Halfwave

In circuit 1 we have the half wave circuit, it will be noted that the voltage regulation is very poor indeed especially with the filter choke in circuit. With 250V RMS AC input the no load (NL) output volts will be about 340V with or without the choke. With the choke in, the voltage drops rapidly with increasing load. At 10mA 185V, at 20mA 125V and at 40mA 40V. With the choke shorted out NL = 340V, 50mA = 315V, 100mA = 305V and 200mA = 290V. The diode peak inverse volts (PIV) is equal to twice the AC input volts peak value this = 700V. Ripple is 50Hz which is fairly hard to filter.



Fullwave CT

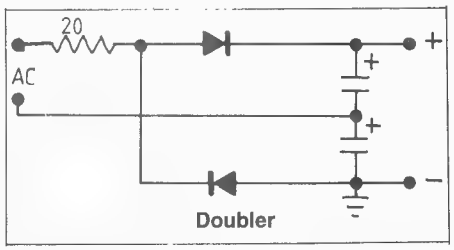
In circuit 2 we see the well known full wave centre tapped circuit each half of the 300V secondary winding with its diode supplies half the total output current. With the choke in circuit NL = 400V, 50mA = 255V, 100mA = 250V and 200mA = 235V. Without the choke NL = 430V, 50mA = 400V, 100mA = 390V and 200mA = 365V. PIV (peak volts of entire secondary) = 840V. Ripple 100Hz.



Economy

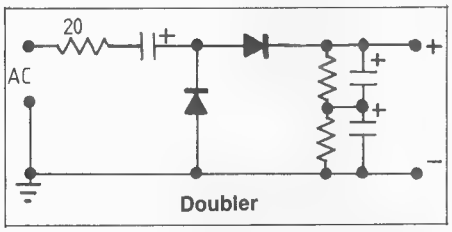
In circuit 3 we have the well known economy power supply giving both full and half voltage outputs from the one centre tapped transformer. This circuit is often used with a transformer salvaged from an old valve type TV. The voltage each side of the CT is usually about 300 to 350 volts, 350V is a bit high for safety with single 1000V PIV diodes so I have shown a 300V transformer. You will note the high voltage circuit is the well known bridge circuit and the low voltage circuit is normally a bit high for receiving type valves and in this case the choke input is very useful. First the high voltage circuit. NL = 840V, 50mA = 800V, 100mA = 760V and 200mA = 720V. Low voltage with choke. NL = 400V, 50mA = 250V, 100mA = 240V and 200mA = 220V. Without choke. NL = 430V, 50mA = 400V, 100mA = 385V and 200mA = 365V. PIV for any diode (peak volts of entire secondary) = 840V. The left side diodes carry both high and low voltage load currents and the right side diodes only high voltage load current. There is very little interaction between the two outputs. With the high voltage supply delivering 200mA changing the low voltage supply current by 100mA only altered the high supply voltage by 7 volts. Ripple is 100Hz for both supplies.

In circuits 4 to 9 we see voltage multiplier circuits. In these circuits capacitors and diodes are arranged so capacitor charges add either with each other or by their being in series with the instantaneous AC input voltage. Generally speaking many of the circuits give poor voltage regulation and this can be improved somewhat by using larger capacitance values.



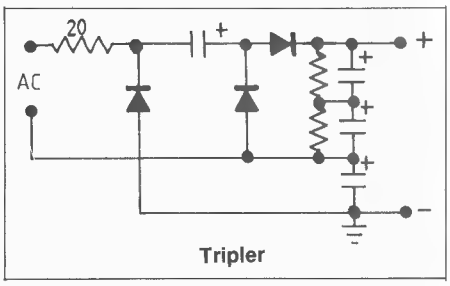
Doubler

Circuit 4 is easy to understand. One capacitor charges for one half of the AC input cycle and on the opposite half cycle the other capacitor is charged. The capacitors are in series aiding so the output voltage is doubled. Both half cycles are fully used, the voltage regulation is fairly good and the ripple is 100Hz. However it will be noticed that with the negative output earthed both AC input terminals are above earth and this is sometimes a disadvantage. This is the preferred doubler circuit giving best voltage regulation and using less components. With 250V RMS AC input. NL = 690V, 50mA = 652V, 100mA = 605V and 200mA = 578V. PIV (supply peak x 2) = 700V.



Doubler

In circuit 5 we have a doubler circuit with one input and one output in common, in this case both being earthed. On one half cycle of AC input the first capacitor on the left charges to the polarity shown, on the next half cycle the lower diode in non conducting, the AC input voltage for this half cycle is in series aiding with the left hand charged capacitor and so the output capacitor (two in series) is charged through the top diode to twice the peak AC input volts. These statements, of course neglecting slight losses in the 20 ohm resistor, the diodes and assuming no load current is drawn. With 250V RMS AC input. NL = 690V, 50mA = 625V, 100mA = 565V and 200mA = 465V. The PIV for each diode is peak AC input x 2 = 700V. Ripple is mainly 50Hz and voltage regulation is poor compared to circuit 4. The main advantage of this circuit is the common input and output terminals which may be earthed.

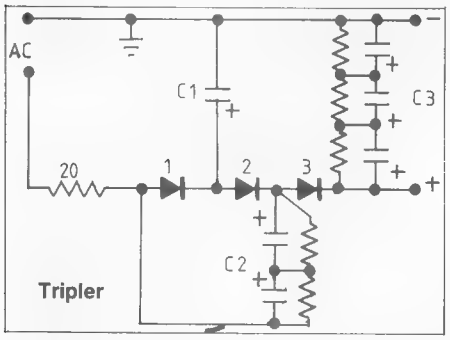


Tripler

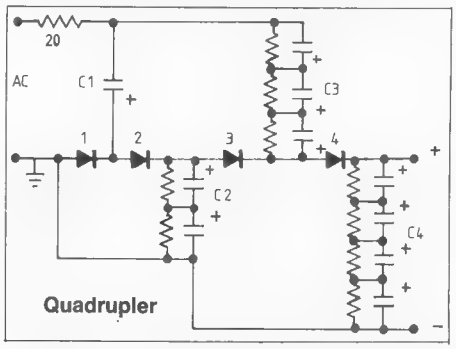
In circuit 6 we see an extra diode and capacitor have been added to the circuit 5 doubler. The extra capacitor at the bottom of the output string of capacitors is charged independently of the doubler circuit and its charge is added in series with the doubler output making this circuit a voltage tripler. It will be noted that both AC input terminals are now

above earth. This circuit is the preferred circuit if both input terminals can be above earth. The voltage regulation for a tripler is quite good. With 250V RMS AC input. NL = 1040V, 50mA = 940V, 100mA = 800V and 200mA = 710V. PIV for all diodes 700V. Output has both 100 and 50Hz ripple components.

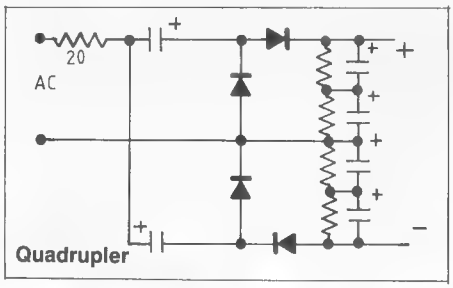
In circuit 7 and 8 one input and one output terminal are common and can be earthed as shown. These circuits have been drawn in an unusual non draughtsmanship like way, but this is done to help you understand how charges are passed from left to right, to emphasise how all diodes are in series and how all electrolytics have their positive ends towards the diode string. In 7 and 8 the diodes have been numbered from left to right and likewise the capacitors.



In circuit 7 giving a very brief explanation, C1 is charged through diode 1 to the peak volts of the AC input this capacitor charge is then added to the AC input volts peak on the next half cycle of AC input this then charging C2 to twice the AC input peak voltage. On the next half cycle C2 with its x 2 voltage is in series with the mains voltage and C3 is then charged to x 3 AC input peak volts. Once again we have neglected slight losses and assumed no output load current. Under operating conditions actually C1 and C3 charge on one half cycle and C2 on the other. As you study output voltage under load you will note voltage regulation is rather poor compared with circuit 6. With 250V RMS AC input. NL = 1030V, 50mA = 900V, 100mA = 870V, and 200mA = 600V. PIV for each diode = 700V.



In circuit 8 the charges from C1, C2 and C3 are passed on in the same way as in circuit 7 but an extra stage has been added and C4 will charge up to x 4 the peak AC input volts (if no losses and load). When this passing on charges from one capacitor to another has been done so many times as in this type of quadrupler circuit considerable losses occur and voltage regulation becomes very bad. The circuit is useful where a common input and output terminal are needed and voltage regulation is not very important. With 250V RMS input. NL = 1370V, 50mA = 1120V, 100mA = 930V, and 200mA = 700V. PIV for each diode 700V.



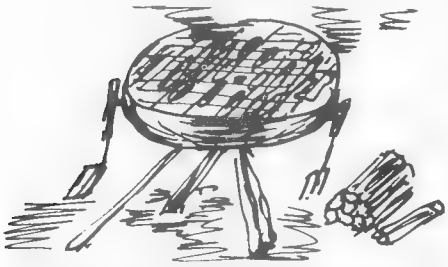
In circuit 9 we have the preferred quadrupler circuit however both input terminals are above earth. This circuit is actually two doubler circuits back to back (compare with circuit 5) the lower doubler having diodes and capacitor polarities reversed. As the outputs of the two doublers are in series the voltage is quadrupled. Because the capacitor chargers are not handed on so many times the regulation is much better than circuit 8, also note less components are used. With 250V RMS AC input. NL = 1380V, 50mA = 1240V, 100mA = 1080V, and 200mA = 920V. PIV each diode 700V.

As mentioned earlier these circuits can also be used for low voltage solid state supplies if component values are changed to suit. This usually means hundreds of microfarads for the capacitors. The number of capacitors in series will give you a clue to how the voltage builds up in each circuit I have shown so you can determine the ratings required in any part of a circuit. The 20 ohm resistor will of course need to be much reduced to probably a fraction of an ohm. With such large capacitors being used it is important that this resistor be of sufficient size to protect the diodes. Most low voltage transformer windings will not have sufficient resistance to protect the diodes.

Finally when diodes have their ratings exceeded they usually short circuit and often explode taking filter capacitors with them. Often junk box diodes have no visible markings and a test is needed to determine the PIV ratings. I find the following method useful — Connect the diode in series with a voltmeter 0 to 1000 volts range with the diode in the non conducting direction. Connect this combination across different values of DC voltage, at low voltages you get no reading on the voltmeter but when the PIV rating of the diode is exceeded you do get a reading as the diode breaks down passing current in its reverse direction. because the resistance of the voltmeter is so high very little current is passed and the diode will not be damaged. Try this test with some diodes of known ratings so you will know what to expect as usually the break down point is considerably higher than the official ratings. Note diode ratings decrease as operating temperature is increased.

AR

Jill & Paul Weaver VK6OF & VK6KOF
23 Waddell Road, Palmyra, WA 6157



FOSTERING INTERNATIONAL FRIENDSHIP

Recently the writers had the pleasure of playing host to a team of Japanese Scientists, some of them amateurs, enroute via Fremantle to the Antarctic.

Although the Japanese spoke little English, entertaining them proved no problem. They showed a great preference for Australian sausages as in Japan sausages are gourmet food.

The visitors, some were physicists, rocket engineers, medical doctors and communications experts, enjoyed a visit to the "Wireless Hill Communications Museum" and the "Fremantle Maritime Museum."

Whilst in the Antarctic the JAs will be operating 8J1RL from Syowa Base and 8J1RM from Mizuho Base.

AR

Back Row from left: VK6OF, VK6KOF, Yamagishi, Furudata, Murai, Maelo JE2HHR, Nomura JR0AOY, and Hiroaki JA1ZII.
Front: Terry, Ken and Luke Weaver, Nogucthi JA8EXE, Satoh JR4HEO and Koeda JA7CDX.

AMATEUR CELEBRATES ANNIVERSARY

On All Saints Day a special Eucharist was held at St Nicholas' Church, North Goulburn to celebrate the 60th anniversary of the ordination as a priest of Canon Monty Nell VK2JQ.

Monty was ordained at Glen Innes and has served in Canberra, Moruya, Binda, Crookwell and Junee. He was elected a Canon in 1943.

Congratulations and best wishes Monty.

AR

Australian Traffic Network

International third party traffic exchange between ATN and the National Traffic System of the US and Canada have taken place over the International Assistance and Traffic Network at 1130 UTC on 14.303 MHz daily over a 4 year period 1981-84. Due to poor propagation over a 3 month period two new networks are now carrying this traffic — effective January 1985.

The International Morse code section of the ATN daily at 0700 UTC on 7.037 MHz ± QRM.

The International phone section of the ATN daily except Sundays 0800 UTC between 7.225 to 7.300 MHz.

Several operators in Canada and the US pass traffic using RTTY, AMTOR, FEC or Packet. If you wish more information check into the national phone section of the ATN daily 1030 UTC 3.570 MHz ± QRM.

Contributed by Sam Voron. VK2BVS Co-ordinator ATN

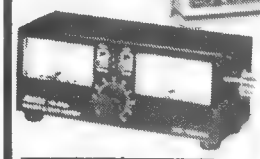
AR

GFS FOR YOUR COMMUNICATIONS GEAR

NEW SWR/POWER METERS FROM MALDOL

HS-370S
130-450 MHz
Two power ranges 20/200W $90 + $10 p&p

HS-260



3.5 — 150 MHz
Two power ranges
12/120W
$56 + $10 p&p

LOW LOSS FOAM DOUBLE SHIELDED COAX CABLE

Our FB series of cable rivals heliax type cable in loss, but at an affordable price.

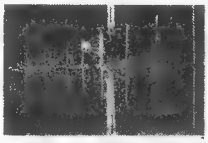
LOSS IN dB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8AU	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

COMPARE THESE PRICES

FB Cable		N Connectors	
5D-FB	$2.60/m	NP-5DFB	$10.90
8D-FB	$3.80/m	NP-8DFB	$11.30
10D-FB	$5.80/m	NP-10DFB	$11.60
12D-FB	$7.90/m	NP-12DFB	$12.50

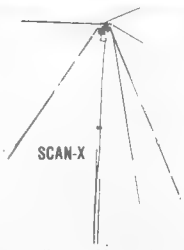
EXPANDED RANGE OF HF-VHF-UHF-SHF ANTENNAS



BROADBAND ANTENNAS

LOG-SP, LOG-SP, 65 to 520 MHz $177 + $14 p&p.
LOG-S, 100 to 520 MHz **$125 + $14 p&p.**

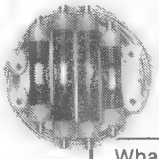
BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS



GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers. **$132 + $14 p&p.**

SCAN-X: 6 element discone for receive applications. 65-520 MHz. **$84 + $14 p&p.**

TRAPPED DIPOLE ONLY 60ft LONG



A-248D 3.5, 7 & 14 MHz trapped dipole is only 60 ft long. **$132 + $10 p&p**

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What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Debeglass	2.5	3.9	430	3.0	6.3	560
Steel wire	2.5	5.6	370	3.15	9.3	530

DB-4 (4mm) $0.58/m DB-5 (5mm) $0.82/m
We also have DB-6 (6mm) available on special order.

HF BROADBAND DIPOLES

New T2-FD series provides continuous coverage.

200 WATT MODELS
3.5-30-T2-FD-200 is 25m long, 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long, 1.8-30 MHz, both priced at $149 + $14 p&p.

2KW MODELS
3.5-30-T2-FD-2KW is 40m long, 3.5-30 MHz.
1.8-30-T2-FD-2KW is 50m long, 1.8-30MHz, both priced at $189 + $14 p&p.

HIGH GAIN 2Mx GUTTER ANTENNA

The Oscar-2ND is a phased ⅞ wave lay-over gutter mount whip. It has a gain of 4.5 dB **$76 + $19 p&p.**

RUBBER DUCK FOR OSCAR-2ND

The F-1E is a screw on replacement for the Oscar-2ND whip, for use when a low profile antenna is needed. **Price $19 + $6 p&p.**

BUMPER HOOK ANTENNA MOUNT

HS-FB is a new mobile antenna mount designed to mount on the tow hook of your car. **$49 + $8 p&p.**

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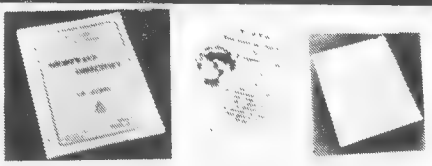
⅝ WAVE 2Mx TELESCOPIC ANTENNA
The G-58 is the original and best Vocom high gain antenna for handhelds. Price $52 + $5 p&p.

FREQUENCY LISTS FOR THE SERIOUS LISTENER



Shortwave Frequency Directory (SFD) lists nearly all commercial users of the HF band, and their frequencies. $28 + $5 p&p.

RTTY PRESS BROADCASTS (RTPB) lists the range of Press RTTY frequencies, over 1500 listings $25 + $5 p&p.

WORLDWIDE WEATHER FREQUENCIES (WWB) lists a range of weather frequencies, as well as their modes. $18 + $5 p&p.

RTTY FREQUENCY LIST (WWRS) lists nearly all RTTY users and their frequencies, as well as modes. $23 + $5 p&p.

WORLD EMBASSY FREQUENCIES (ERCW) lists a number of diplomatic embassies and their frequencies. $25 + $5 p&p.

HIGH GAIN 1.2 GHz COLLINEAR ANTENNA

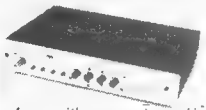
The GP-1217 is a 17 section collinear vertical with 10.8dB gain. **$119 + $14 p&p.**

FOR THE RTTY OPERATOR

MDK-17 (KIT)
MOD-DEMOD

A high performance modem kit for use on a computer or teletype. Offers high noise immunity on receive **$118 + $6 p&p** (kit) or **$181 + $8 p&p**, (assembled).

MFJ-1224



Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p.**

RTTY/SITOR FOR TRS-80C

DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR. RBA provides transceive on RTTY (BAUDOT) — ASCII.
(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programs.
DCM **$75 + $5 p&p**, RBA **$55 + $5 p&p.**

AR85

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APPROVAL FOR AERIAL TOWERS

Sam Voron VK2BVS
2 Griffith Avenue, Roseville, NSW. 2069

Is the obtaining of approval to erect aerial towers a dream, a nightmare, or our right? Read how Sam Voron overcame the objections of 79 neighbours and persuaded his local council to approve his application.

Using aerials at 18.29 metres I have, over three years, built up friendships with people around the world who operate daily on the International Assistance and Traffic Network (IATN). Recently repairs taking some months were necessary to my aerial mast. Temporarily, I set up a dipole on the roof to get back on air. But even with the 400 watts legal power limit my friends worldwide could not hear me. Consequently my international public service message handling capability was gone. The value of a tower as part of one's amateur station is evident.

Here is advice about obtaining a tower approval despite; as in my case, a counter petition signed by many local residents. I know of other amateurs fighting for this right and hope this information will assist. Although each local council has its own guidelines for examining tower applications much of this material should be relevant.

(1) Fill out the building application form, include manufacturer's tower design plans and site plan. Do not include aerial details unless requested. Make friends with council employees. In my case the clerk was a CB operator and very helpful.

(2) Find out what the voting procedure is. In my case 5 out of the total 10 councillors sit on the building sub-committee. If all 5 vote unanimously then that's council's decision. If not unanimous the application goes before the whole council for a majority decision. If they vote against, you can appeal to the Land and Environment Court, in NSW.

(3) Ask the building department council employees if they see any problems. They are responsible for preparing the application details for the council meeting. I was told the following petition signed by 79 local residents had been lodged.

'We, the undersigned, vehemently object to the radio-transmitting aerial tower on the following grounds:

(a) The unsightly nature of the structure constitutes visual pollution.

(b) The structure is not in keeping with the residential nature of the area and the surrounding development.

(c) The presence of the structure lowers the value of the surrounding properties.

(d) The structure detrimentally affects the amenities of the local population.

(e) The transmission of radio signals interferes with TV reception and use of other electronic apparatus in the immediate neighbourhood and reduces the enjoyment of the lifestyle of the nearby residents.

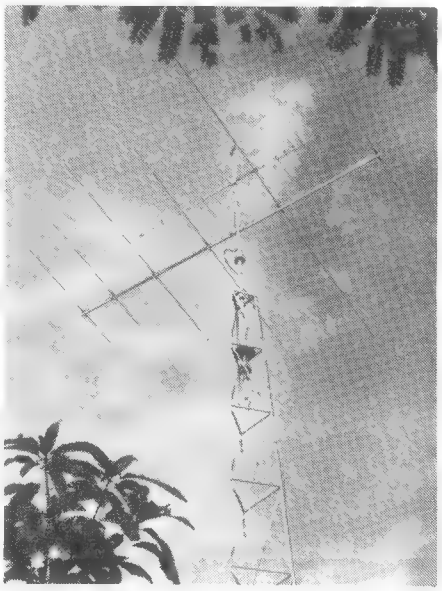
(f) The structure is likely to cause danger through lightning unless suitably earthed . . .'

(4) Provide council with a written response to any objections. Point by point, mine were —

(a) Just as power poles are needed to carry electricity, just as TV aerials are needed to watch TV, the structure is needed to participate in the hobby of worldwide communications.

(b) Amateur radio is a residential recreational hobby activity.

(c) (***As heard on WIA Federal tape and received from FE office***). In January 1984 Mr and Mrs Dale Green won the 'house of the month' award after being selected by the Sierra Vista beautification commission. Clearly the commission did not see the hobby of amateur radio detracting from the value of surrounding properties. On receiving the award, the owner Mr Green said his antenna a top a 18.5 metre



Photograph courtesy Charles Ivin VK4BPI.

tower enhances his ability to provide community service using amateur radio.

(d) The hobby of amateur radio enhances the amenities of the local area because it enables people especially the young, retired or handicapped to enter into a unique recreational modern day activity.

Having myself been introduced to the hobby at the age of 11, I have always enjoyed encouraging others to the hobby; But it is a unique hobby which requires the sitting of an examination in International Morse Code, International radio regulations and radio theory.

My father, brother and myself are all licensed radio enthusiasts. Amateur radio is a worldwide hobby. It is a local, national and international amenity which encourages people to communicate with each other irrespective of colour, race, religion or national boundaries, from the comfort of their own homes.

In a disaster, amateur radio operators make themselves and their equipment available to their local community at no charge. For example, during the Darwin cyclone, Victorian bush fires, NSW floods and in Sydney during the 1981 STD telephone breakdown. Here I was involved in sending 100 urgent health and welfare messages from distressed members of the public to their friends and relatives around Australia and overseas.

I have a letter from President Reagan, referring to the International Assistance and Traffic Network. In this my station has faithfully represented Australia almost daily since 1981, helping to link the world particularly during times of disasters, to help relay messages from the public to their loved ones during times when all commercial and government services have been disrupted or overloaded.

Local activities include communications assistance for the Red Cross, Salvation Army, Fun Runs, Autistic Childen's Association Bicycle Race and other community groups requesting such help. I have made my home available every second Friday for newcomers to meet and organise activities, in a club called the Amateur and Citizens Radio Club, formed in 1977. Our club patron is David Connolly, a member of Federal Parliament, who has supported our community activities.

(e) As regards interference, two inspection reports dated 1980 and 1984 verify my station complies with all regulations. These regulations require my station not to be the cause of interference. Where interference does occur, the complainant should refer the problem to the Department of Communications, Interference Division, who will determine the source of the interference and whether the fault lies at the transmitting station or is the result of poorly designed and/or faulty consumer equipment.

(f) The structure conforms to all requirements regarding earthing.

The petition, advocating a prohibition on any structures, towers or aerials, in effect seeks to outlaw the hobbies of amateur radio, citizens band radio, worldwide shortwave listening, improved VHF/UHF TV reception and extended range AM/FM radio reception. All these are legitimate recreational activities within the domestic environment and should not be prohibited.

(5) *Ring the councillors (5 in my case) who will vote on your application. This is a most important step to ensure each knows what amateur radio is and the necessity of the proposed structure for the pursuit of your hobby. I was surprised that all at least knew of an amateur; one's wife was studying for a licence and another's son was "into CB". During daytime working hours, council buildings are normally manned by employees. Councillors themselves have ordinary outside jobs, so are used to being telephoned at reasonable hours after work at home. Their numbers are listed in council information booklets. As a resident you are entitled to seek the help of these elected officials. Explain the hobby, the importance of the tower, ask if they see any problems and say you will be at the meeting.*

(6) *Find out the time and place of the council meeting and be there. These are normally open meetings and all may attend.*

I hope my experience will encourage others who may have been intimidated by such situations, and not proceeded, to try again.

Were the results worth it?

To begin with, the neighbours stopped complaining once the council decision was made. I have a 7 element TH7DXS for 20, 15 and 10 metres at 15.24 metres a 2 element 402 beam which works into the USA every day on 40 metres from the 18.29 level, a 6.1 metre 27MHz CB vertical which could be a "beaut" lightning rod to save my more expensive aerials below as well as put out 'Sydney hobby newsbroadcast' each Sunday. Quarter wave slopers for 1.8 and 3.5MHz towards USA and Europe give me S7 to 9 many nights a week to USA on 75 metres.

After several months using 1.8 to 30MHz daily and 400 watts no one has reported interference except to video recorders. Here I have referred to the Minister's warning to consumers and advised them to sort out the problem under the VCR warranty.

By the way, one VCR picked up 5 watts AM on 27MHz the other 2 metres FM. The 1.8 to 30MHz 400 watt SSB which I use extensively with my new set up does not worry any of the 80 neighbours here in residential Sydney.

AR

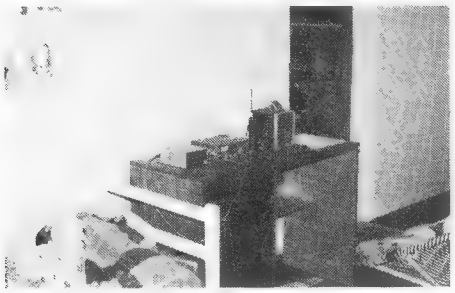
HAVE SIX — WILL TRAVEL

Lionel Curling VK3NM/ZL1SW
18 Lexington Street, Vermont, Vic. 3133

Lionel has recently returned from a six week trip to New Zealand, Norfolk and Lord Howe Islands. On the trip he took an IC-505 6 metre transceiver, homebrew two element, 6 metre quad made of PVC conduit fittings and an IC-25A 2 metre FM mobile transceiver in the hope of hustling some VHF activity.

Upon arrival in Auckland a rental car was collected and I drove off to my cousin's home in Whangarei to arrive at 12.30 am Christmas Day. Several 2m FM contacts were had en route.

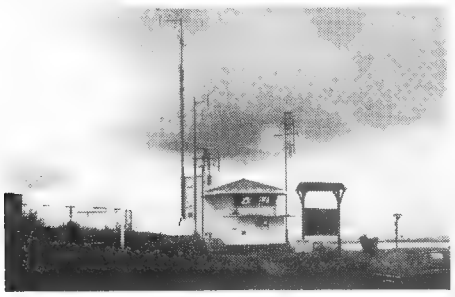
After a scrumptious meal of turkey, Christmas pudding and all the trimmings it was time to erect the quad up on the balcony using willow branches and doweling, which was handy, for a mast. By 2pm I was listening on 6m and had the first of many QSOs with Roger VK2XJ.



The Shack — NZ.

Kirk ZL4PX very kindly loaned his HF transceiver but due to a poor aerial and poorer conditions very few HF contacts were made.

From Boxing Day to New Years Day we all went for a trip to Devonport, Auckland and using 6m from the car with a 2m magnetic mount five-eighth whip, contacts were made with VKs 2, 3, 5 and Chris ZL7OY. Most contacts were in the evenings. Most of the daytime was taken up with sightseeing around Auckland and Rangitoto Island.



Old Signal Station at Mt Victoria, Auckland.

The rest of the stay in New Zealand was spent around the Onerahi, Whangarei area working VK2,4 and Pierre FK8EM. VK TV was heard nearly everyday, sometime with TV "crud" so strong it lifted the S meter well into the red. One morning channel 0 in Brisbane was so strong that it sounded like a local station however it was impossible to raise any VK4 amateurs.

With all the openings across the Tasman I did not work any South Island stations on Es although a very weak ZL4 was heard but was unreadable for contact purposes.

After a four week sojourn in New Zealand it was time to dismantle the quad, donate the HF dipole to my uncle for use in his garden, send the HF rig back to Kirk ZL4PX, pack the bags and set off for the next stop, Norfolk Island arriving there around 9am.

I arrived at the hotel at 10am and immediately set about making 6m operational. By noon the rig was running and contacts were made with VK2 and ZL in two very good openings during the stay. VK and ZL TV was heard most days.

6m Quad — Norfolk Island.

Norfolk Island has a local radio station, VL2NI, operating on 1.566MHz and 93.9MHz FM. The station relays Radio Australia during the afternoons until 7pm in the evenings.

During the stay on Norfolk I met with local resident John VK9JA who operates a slide commentary on Norfolk Island wildlife and a movie on Pitcairn Island. It was very interesting to listen to John's talks. John keeps regular scheds with Tom Christian VR6TC on Pitcairn.

Norfolk Island is eight km long by five km wide with Burnt Pine as the main town. There are many modern shops, car rental firms with very reasonable rates and unlimited mileage, duty free goods, restaurants, etc and the lifestyle is pleasant with friendly people and is free of crime.

Cows have right-of-way on all roads and there is a $200 fine if you should run into one.

Norfolk is steeped in history. Pitcairners arrived in 1856 after a 4000 mile sea voyage to settle on Norfolk, hence a lot of the present Norfolk Islanders are direct descendants of Fletcher Christian who settled on Pitcairn Island after the Bounty Mutiny.

Things became very harsh on Norfolk during the two convict settlement days with the second settlement being so ruthless it was closed down after word about it got back to England. Many of the convict buildings can still be seen in Kingston.

Kingston.

Norfolk is famous for its Norfolk Island Pine, a conifer which grows to great heights and is great for the stringing of high dipole antennas.

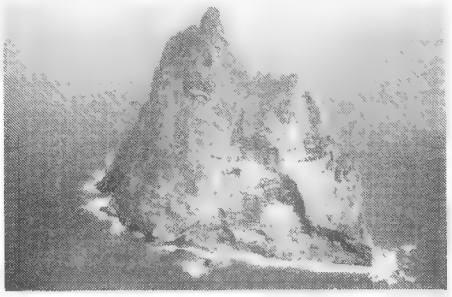
Anson Bay and Norfolk Island Pines.

From Norfolk I flew to Lord Howe in a small Beechcraft plane, sitting up in front with the pilot.

Upon arrival the first priority was setting up the 6m gear but due to the short distance to VK2 I only managed to work a couple of ZLs one morning and there were very few bursts of VK TV.

Lord Howe is a moon shaped island, 11 km by 1-2 km wide with two large mountains, Mount Lidgbird and Mount Gower. There are plenty of bush walks for the energetic as two thirds of the island is kept in its natural state.

One day I took a plane ride out to Ball Pyramid, which is a jagged pinnacle jutting out of the sea, and the next day took a six hour fishing trip there however the fishing trip was not a great success due to sea-sickness.



Ball Pyramid.

A fascinating bird that lives on Lord Howe is the wood hen. It comes to investigate if one bangs two rocks together. It is brown in colour with wings like a domestic fowl but cannot fly and has a long beak which it uses to forage food similar to a New Zealand kiwi.

Whilst on the island I met with Dick VK9LH and Ken VK9LK. Ken is the islands doctor and Dick runs an art gallery. Both are not very active at present but Dick does show an interest in 6 metres which could be a good indication.

Radio Lord Howe transmits on 1.494MHz usually with a relay from a Brisbane radio station.

Power is generated from diesel at the Department of Transport building with a capacity of 700kVA from three generators.

Finally it was time to head for home via Sydney but I would highly recommend an amateur holiday to these islands as there are no ugly high-rise hotels and other typical tourist traps.

AR

REPEATERS — Friend or Foe!

Tim Mills VK2ZTM
PO Box 204, Willoughby, NSW, 2068.

Last month I traced the early FM era up to the permission to develop repeaters in Australia. A meeting of interested amateurs had been arranged.

Wodonga — Saturday afternoon 21st September 1968. An assortment of amateurs from the eastern states of Australia gathered in a hall (hut) on the army base at Wodonga, the twin town with Albury on the VK2/3 border. In addition, members of Federal Executive were present. Upon opening the meeting the delegates were welcomed and congratulated on the generation of such a gathering to develop a technical standard and agreement for a new mode. The minutes of the meeting were later formally ratified as a Federal meeting and became the basis of policy.

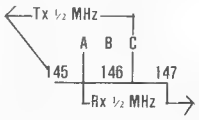
It was agreed by all that the repeater era was arriving and while each system was for local area coverage, mainly to extend mobile range, people were travelling about and hence standard frequencies were required. It was a crystal locked era but the Channel "B" in each mobile showed that each general region relied on a slightly different standard reference. It usually showed who was the visitor in the group.

Meeting introductions soon gave way to technical discussion. Most of the equipment coming into service was ex commercial and tended to be 'peak aligned' so that it had a switching range of ⅞ .25 MHz of the centre frequency in use, before receiver sensitivity or transmitter tuning dropped off. (The day of the broad tuned front ends had yet to be developed and Japan's electronic industries had not discovered the VHF amateur market. The American repeater scene was similarly based on the ex commercial equipment market.)

The obvious frequency sub-band was that already in use, based on channel 'B', 146.000 MHz. Taking ⅞ .25 MHz, would be a range of 145.750 to 146.250. This covered the existing simplex channels A — B — C (145.854 — 146.000 — 146.146). In order that a system could operate in a — talk through — repeating mode, different frequencies had to be used, for the receiver and the transmitter, since both are on at the same time. A transmitter will desence a receiver, which becomes worst with the closer the frequency spacing. In the commercial world of the day, the few systems (repeater/duplex) then in use had a separation of several megahertz. Amateurs however still wanted to retain their simplex ability for when they were out of the range of repeaters.

Most felt it was unlikely that many channels would be required but it would be nice to retain the existing simplex. It was decided to have the (repeater) transmitter to operate on the low side of 146 MHz and the receiver to listen high.

A bit of drawing on the blackboard soon made clear the discussion at hand.



(As seen from the repeaters point of view. It is the reciprocal for the user.)

Accurate frequency measurement was difficult in 1968 for the average amateur and ideally frequencies should end in hundreds. The lowest practical transmit frequency was 145.600 and the highest receive was 146.400. The 50's were out since these were where A and C occurred.

Tx	145.6	145.7	145.8	145.9
Rx	146.1	146.2	146.3	145.4

With that it fell into place. By using an input — output spacing of 500 kHz there could be 4 channels, and still have the (3) existing simplex.

Discussion then came round to what was a practical utilisation. It was felt that 3 channels in the rig was about the limit, since many existed or could be modified from single channel units. In addition there was the crystal costs. There were large distances between sites etc. hence sharing was practical. (The total band plan now has 31 channels. In major population regions most are in use.)

Different simplex frequencies prevented a national calling channel so it was decided to adopt "B". This left two spaces on the channel selector. To tell the difference it became 'alpha' for simplex and numeric for repeaters since there was 146.1, 146.2 etc *but which two to pick?* In part 1 mention was made of the 'VK2' experimental system. It was suggested to the meeting that since they had already done a frequency change — B-A which moved to C-A, they should not be subject to a further major change. So channel 1 was chosen and from the other end channel 4. To further provide standardisation it was suggested that ch 4 be used in each capital city and ch 1 in country regions. Not everybody remembered that and in due course when each State came to develop their first system, some thought it meant the first used was to be ch 4. (In todays numbering ch 1 is 6700 and ch 4 is 7000). Geelong was the first VK3 system and Mt Barrow in VK7, both were ch 4s. At least Adelaide, Brisbane and Sydney ended up with a ch 4, Hobart, Melbourne and Perth have ch 1s. Channel 2 and 3, by a policy decision, were not to be used at that stage. Something to be misunderstood later and helped lead to a further meeting in 1972. In 1968 the amateur satellite programme had not settled internationally in 145.8 to 146.0 MHz.

The meeting then went on to other business. They moved to adopt 438.000 MHz, the 3rd harmonic of 146.000, as the FM simplex in the new 70 cm band (acquired in 1964). They also decided that a national co-ordinating body was required. Since VK2 had arranged the meeting, the meeting suggested VK2 should fill the role. Later Federal Executive confirmed the appointment and this committee became known as the Federal Repeater Secretariat, with a set of guidelines drafted by FE. (A 3 person committee.)

The meeting went on to discuss grandiose schemes for the new found mode, like a link from Melbourne to Sydney. The meeting then closed and the various State delegates went home fired with enthusiasm, most soon submitted their first repeater applications. It was to be a long wait for many however. In VK2, permission came through in September 1970.

To be continued.

GLOSSARY OF REPEATER TERMS

In these articles I make use of a selection of terms to describe operations. My meanings in the context used are:

SIMPLEX — To receive and transmit on the same frequency.

REPEATER — The device at the heart of the system. Usually frequencies referred to are those in the repeater. Where a channel number is used — eg 6700 this is the transmitter frequency and is short for 146.700 MHz.

DUPLEX — A commercial term for a system which works like a telephone in that the user can talk and listen at the same time.

OPERATOR — My term for the group who set up and maintain the repeater system.

SPLIT — A slang term for repeater offset. On 2 metres Australia tended to follow America in that the planners felt that a users receiver had less bandwidth than the transmitter. By basing the centre of the 2 metre band on 147 MHz. (Part of the thinking at the 1972 meeting), the receiver only had to cover ⅞ .25 MHz of 147.000 while the transmitter had to go from 146 to 148. The offset became 600 kHz and except for 7000 any channel number starting with 6 is a minus offset and anything with 7 is a plus offset.

TRANSLATOR — Term used in the handbook. My understanding is that a system which receives on one frequency and retransmits on another without demodulating the RF signal is a translator. The principle used in most TV service translators. If the signal is demodulated to audio which is then used to remodulate the transmitter this is a repeater, when used in the Amateur Service. The TV service uses this term for systems at remote mining sites where the TV programme is prerecorded elsewhere, taken to the region and used to modulate a local low powered Tx. It was usually a day behind major centres in programme content. Now mostly phased out of service since most areas have satellite or terrestrial links.

HAPPY ANNIVERSARY

As the WIA celebrates the Seventy Fifth Anniversary of its inception this year so too are celebrations in order in the UK

The July issue of Radio Communications will mark the diamond anniversary of the RSGB journal which was first published as T&R Bulletin in July 1925.

Shortwave Magazine also celebrates its fiftieth birthday this year.

from Radio Communication — February 1985

AR

NEW VHF CONFERENCE FORMAT AT DAYTON

The Dayton Hamvention's International VHF/UHF Conference will have a new improved format for 1985. The dates this year are 26, 27 and 28 April.

* *There are no VHF Conference forums scheduled on Friday this year so that attendees are free to explore the giant Flea Market and Exhibits during the day.*
* *The unique Noise Figure Contest will be held at Hara Arena beginning at 1800 on Friday. The Arena will be closed to all other Hamvention activities so that the potential RF interference is eliminated. Prizes awarded to winners in the Homebrew category for 144-2304 MHz.*
* *Technical Forums begin at 0900 on Saturday with topics covering Antennas, Propagation, Contesting, Dynamic Range Measurements, and much more.*
* *The Antenna Gain Measurements begins at 0900 on Sunday behind the Arena. Certificates awarded for Highest Gain and Best Figure of Merit, and prizes for winners in the homebrew category. Bands covered are 144, 220, 432, and 1296 MHz.*
* *THERE ARE NO VHF CONFERENCE ACTIVITIES AT THE IMPERIAL HOUSE THIS YEAR.*

For further information contact Jim Stitt WA8ONQ, VHF/UHF Conference Moderator, 311 N. Marshall Road, Middletown, OH 45042.

AR

CALL SIGN INFORMATION

Members are reminded that production of the 1985/6 Callbook is in hand. Would all members please check their AR address label to ensure their call sign and address are correct.

Please notify the Federal Secretary, WIA, PO Box 300, South Caulfield, Vic 3162 of any inconsistencies.

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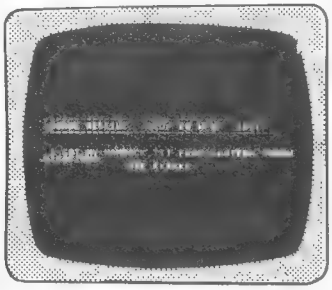

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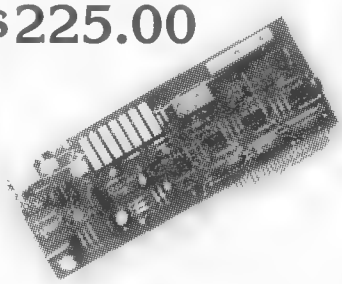
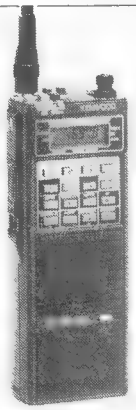


HAMPACK III MODEM

Turn your APPLE II & IIE or compatible computer into a communications terminal. Send and receive Morse code, RTTY and ASCII at any speed from APPLE peripheral slot. Complete with software and instruction manual.

FEATURES ARE:

- ★ *10k receive buffer*
- ★ *10k transmit buffer*
- ★ *Split screen*
- ★ *Save buffers to disk*
- ★ *Retrieve text from disk*
- ★ *Brag statements*
- ★ *Auto CQ, ID, QTH, etc, etc.*
- ★ *Many other features too numerous to mention here*
- ★ *2125-2295 Hz + 1300-2100 Hz Tones (1200-2400) opt.*



KENWOOD
TR-2600A
5m FM Handheld Transceiver

AOR **AR2001**

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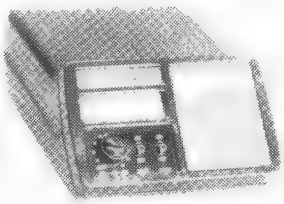

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Announce the arrival of the **Vectorio PC16 Computer**

SYSTEM —	Two units: keyboard and main cabinet with processor and drives, monitor optional.
PROCESSOR —	Intel 8088 (4.77 MHz), 128k RAM expandable to 256k with 64k increasment. Expansion card to 768k optional. Co-processor 8087 optional with socket.
OPERATING SYSTEM —	BROM V.1.2 DIOS V.2.2 MSDOS 2.11 licensed by Microsoft Inc USA Concurrent CP/M-86 licensed by Digital Research
INTERFACE CAPABILITIES —	5 expansion slots RS-232C I/O on board Parallel I/O on board Floppy Disk controller on board Color/graphic board provides high Res Composite, NTSC & RGB output, also light pen interface.
STORAGE DEVICES —	2 floppy disk drive, 5.25", half height, double density double side, 500kB unformatted, 327kB formated each. 2 spaces for optional floppy or hard disk drives.
KEYBOARD —	ASCII standard typewriter keys, 10 function keys, special control keys, numeric keypad and 2 big ENTER keys.
POWER SUPPLY —	130W, switching type, cooling fan, 240V/50Hz. Able to drive two/floppy & two/hard drives.
MANUAL —	Operational manual, MSDOS user's guide, DIOS V.2.2, Concurrent CP/M-86.

$1899

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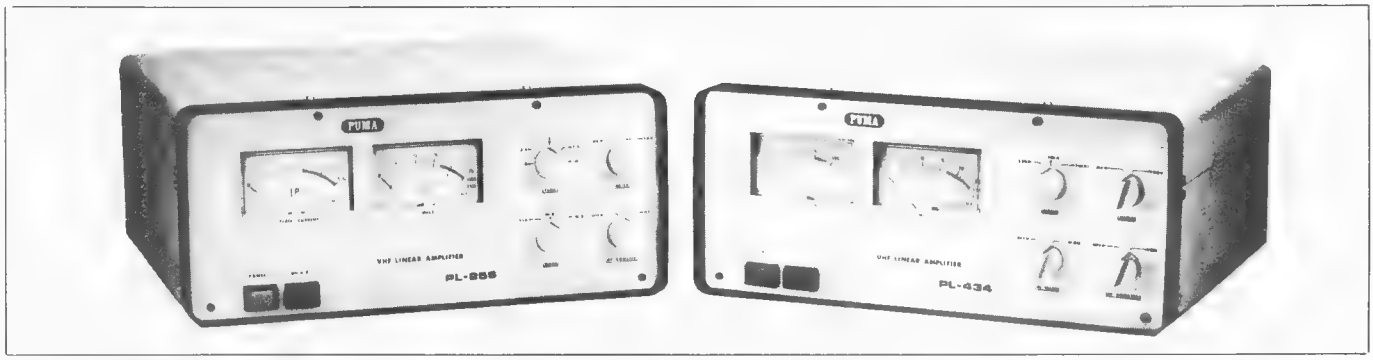
PL-25SG, PL-434G VHF-UHF Linear Amplifier

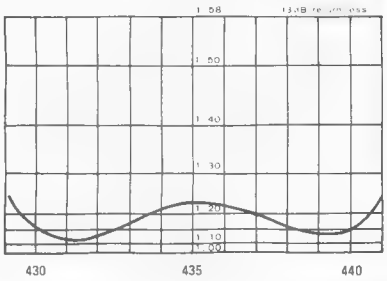


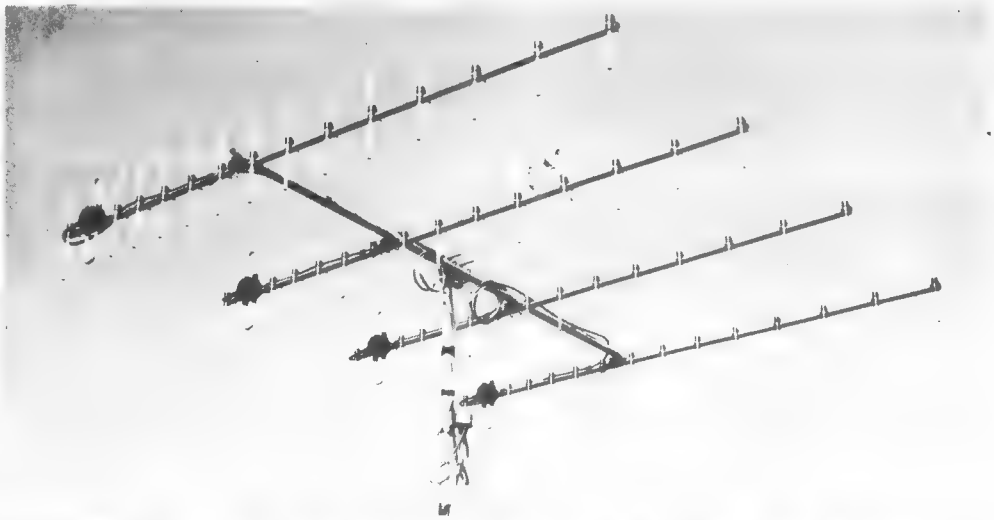
	PL-25SG	PL-434G
Circuit	Class AB$_1$ GK	
Frequency	144 ~ 148 MHz	430 ~ 440 MHz
Input Power	600 W	500 W
Plate Voltage	2000V	
Output Power	300W	250W
Mode	SSB, FM	
Drive Power	Under 10W	
Input Impedance	50Ω	
Output Impedance	50 ~ 75Ω	
Cooling System	Sirocco Fan	
Power Requirements	240V 3A	240V 3A
Dimensions	(D)310 x (W)340 x (H)155 mm	
Weight	17.5 kg	
Tube Complement	EIMAC 4X150A (7034)	EIMAC 4CX250B(7203)

Accessories: RF Amplifier included (PL-25R, PL-434R)

GY-715Q
GY-715Q
20.0 dBi

GY-715Q





AUSTRALIAN
AGENTS FOR

ANTEN BASE ANTENNAS

AR85

G-GEORGE PART 2

Alan Hawes VK1KAL
35 Jacobs Street, Evatt, ACT 2617

G-George was given to the Australian War Memorial in 1955 after being flown from the UK. When it was handed over to the Memorial it was only a shell with most of the internal equipment missing. However, recently Eric Gledhill was engaged by the memorial to begin the task of restoring and maintaining the aicraft.

Eric is a former RAF airframe fitter who had by chance, extensive experience on Lancaster planes and the sister aircraft the Lincoln.

The Memorial would be pleased to hear from anyone who knows the whereat outs of any original equipment for Lancasters or Lincolns. Items they are on the look out for are, instruments, fuel cocks, switches, internal lights etc.

During September 84 Morrie O'Keefe VK3KO contacted the VK1 Division to ask for assistance in providing local contacts and operators for the proposed handover of the restored radio equipment for G-George.

Contact was made with the Memorial staff to investigate possible sites for an antenna. At first the Memorial staff where less than enthusiastic about the prospect of an antenna being mounted on the building, but it was explained to them that the antenna was designed to sit on a flat roof with weights to stabilise the mounts.

On Thursday 15th November Alan VK1KAL, Ken VK1NDK met with Morrie to erect the antenna. The selected site was a 20m x 30m flat zinc roof, an excellent ground plan for the 5 band trap vertical antenna. During the erecting process it was decided to add extra weight to the base, which took the form of a "25lb bomb" dating from 1914 which just happened to be at hand.

The most interesting moment for the writer was clambering along the wing of the Lancaster to catch the coax cable being lowered from the upper windows of the aircraft hall. While on the wing I was encouraged by cries of "don't slip", "mind the canvas", "the wings are moving", etc. I need not have worried as after the event I was shown a photograph of the entire squadron's air crew standing on both wings of the Lancaster, a small testimony to the strength of the plane.

The antenna and power were connected ready for a test to see if the equipment had survived the journey from VK3. The first contact on the set up was with Dave VK1DG not exactly rare DX but at least it proved everything was operational.

L to R: Jack Wilson and Peter Burnham.

The following day at midday Morrie and approximately forty fellow members of No 460 Sqd Association, together with visitors and friends from NSW, Victoria and the ACT assembled in the aircraft hall of the War Memorial for the presentation. On behalf of the No 460 Sqd, Jack Wilson presented a bound volume to Peter Burnham, curator of Heraldry. Contained in the volume are the names of the 978 members who died while serving with the Squadron.

The voice for G-George, the Marconi Radio Equipment was presented to Jim Heaton, curator of weapons by George Kirk, President of the Victorian Branch of the Association.

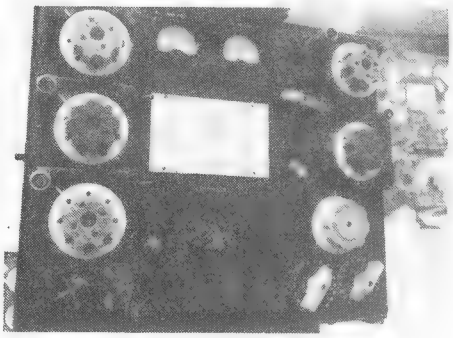
L to R: Jim Heaton and George Kirk from Marconi Equipment Centre.

Now all of Morrie's work was to be put to the test. Morrie made contact with the following stations *John VK1NCO operating VK1RM from the Royal Military College, Duntroon, Ces VK1NCX operating VK1WI and Roy VK2DO in Yass.*

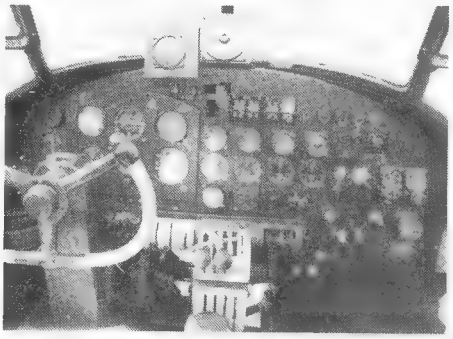
Morrie O'Keefe VK3KD with the radio gear.

Contact was attempted with the No 460 Sqd National President in Adelaide, but unfortunately band conditions were not good not to mention the mercury vapour lighting in the aircraft hall.

The Marconi equipment restored by Morrie was a T1154 transmitter and its companion receiver the R1155. It is interesting to note that these types of equipment provided the mainstay of equipment for amateurs after the Second World War. I have seen advertisements in English post war magazines advertising these items of equipment complete with spare valves for 13/6d, a far cry from today's prices.

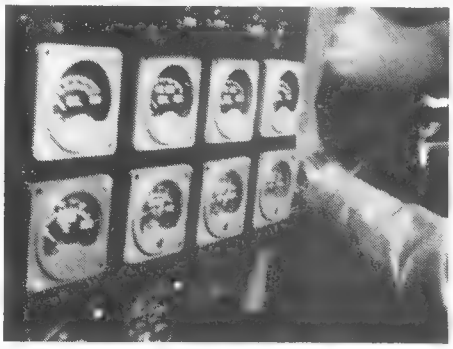


Marconi T-1154.



G-George Cockpit.

Looking towards the Radio/Navigators Post from the Cockpit. On left is Eric Gledhill.



Engineers Panel.

At the moment the radio equipment is on display beside G-George. It is intended to eventually install the equipment in its correct position in the aircraft. When the interior of the aircraft is more fully restored a walkway is to be built up and around the aircraft so that visitors may view the interior.

See also page 19 November AR

AR

EQUIPMENT REVIEW

Ron Cook VK3AFW
TECHNICAL EDITOR

ICOM-04

Hand-held transceivers are getting smaller. In the Bad Old Days the rule was the higher the frequency the bigger the rig, but not any more. The IC-04 is the latest in a line of high quality, high performance hand-held FM transceivers from Icom. It is only 157 mm (h) x 65 mm (w) x 35 mm (d) and weighs in at around 0.5 kg with battery pack attached. And it can produce up to 5 watts of output with the appropriate battery pack!

I found this unit to be easy to use once I had a little practice and was pleased with the reports on both simplex and repeater operation. Setting the repeater channels into memory gave me some problems initially but this was overcome after re-reading the manual and trying again. The rig came complete with the ubiquitous "rubber ducky" flexible whip. Using this and 3 watts I was able to operate through the repeaters on Mt Dandenong and Mt Macedon from Oakleigh. Mobile operation, using a 1/4 wave 2 m whip was also surprisingly effective. The programmable scan is a nice feature as is the ability to set up a "priority" channel. In use, this last feature allows you to scan channels set in memory yet not miss a call on your special channel. Another fine design point is the battery back up of memory channels — no longer do you need to key in all those frequencies and their offsets every time you switch battery packs or change to another power source.

The only performance parameter that I could check with any useful accuracy was the power output. This was 3 W or slightly more across the band.

Should you wish to operate in the shack or from the car then this little rig can be plugged directly into a 12 V supply or into the cigarette lighter outlet. (Ah ha — a use for it at last!). While you operate the batteries are charged — another nice feature. A range of accessories such as a leatherette case, seven alternative battery packs, headset with boom microphone, variable rate chargers and external speaker/microphone make this a very versatile UHF station.

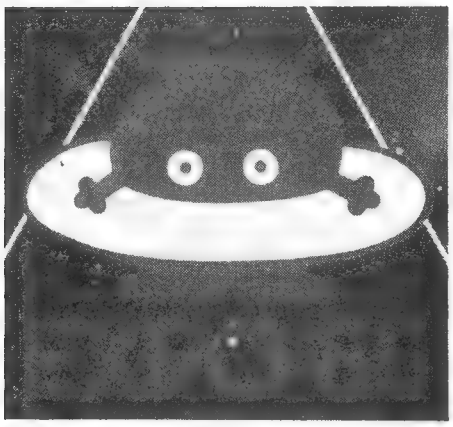
The construction is solid and professionally finished. The aluminium back is used as a heatsink — very necessary when running 5 W. Because the unit is so compact I would not be keen to service it. Of course full back-up is available from Icom (Australia) Pty Ltd should you be unlucky enough to need a repair.

The world of UHF is something like two metres was twenty five years ago. It is not difficult to get a contact but the pace is noticeably slower and the operators seem friendlier. The dreaded "kerchunka bird" has not yet come to roost on UHF. So if you are interested in UHF FM then I recommend this rig as being worthy of consideration.

The unit evaluated was kindly provided by Icom (Australia) Pty Ltd. For the current price, check the advertisements in this magazine or enquire at your nearest dealer.

AR

AR SHOWCASE



TOUR TO EXPO '85

Travelaw, the travel agency which organised some very interesting tours for radio amateurs, is planning another tour to Japan.

This tour will include the Expo '85 exposition which is based on "Science and Technology — in the Service of Man".

For further information refer to their advertisement in this issue.

AR

ICOM DAY AT GFS

Icom Australia in conjunction with GFS Electronic Imports are staging, on Sunday 14th April an event unique in Australia to amateur radio. Known as Icom Day, it will be held between 10 am and 4 pm in GFS's showrooms at 17 McKeon Road, Mitcham.

All are welcome to take part in this free event. An I-2A 2 metre handy talky will be provided as a door prize along with free refreshments.

Apart from the chance to meet many other amateurs and SWLs it will provide an opportunity for viewing the latest equipment releases from Icom. Included will be their new HF transceiver, new VHF/UHF

Duoband transceiver as well as Icom's latest entrant to the programmable VHF/UHF scanning receiver market.

Additionally GFS and Icom hope to be able to demonstrate satellite TV from the USA.

Some of Icom's popular products will also have their prices marked down especially for the occasion. All things considered, Icom Day promises to be an interesting and entertaining day. If you would like further details contact either GFS Electronic Imports on (03) 873 3777, or Icom Australia on (03) 51 2284.

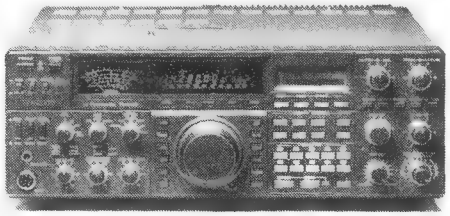
AR

HF TRANSCEIVER — THE TS-940S

A new exciting product from Kenwood the TS-940S will be available in Australia very soon.

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 metre amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 metres, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DXer/contest operator in mind, the TS-940S features a wide range of



innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFOs, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast. The unit may be ordered with the antenna tuner installed or available as an option.

AR

THANK YOU

The Federal Office of the WIA gratefully acknowledge the donation of Volumes 1 and 2 of "Handbook of Wireless Telegraphy" 1938 editions by John Gerber VK1EG on behalf of Mr T S Philpott, Esq, recently retired from the Department of Defence.

AR

BOOK REVIEW

FROM PASTURES GREEN TO SILVER SCREEN

Autobiography by John W Gerard VK2ADN

Published by the Author

PETER WOLFENDEN VK3KAU

Wireless and Cinematography, two spectacular achievements, paralleled themselves in development. They both became realities during the late eighteen hundreds.

The year that a Lumiere Cine-cameraman, Maurice Sestier, cranked his machine to record the 1896 Melbourne Cup; Melbournian, George Selby, was corresponding with Sir Oliver Lodge about "wireless". During the following year Marconi successfully demonstrated wireless over an eight mile path.

For the next twenty years or so both sciences developed greatly with major improvements being made — often in spectacular ways, much to the delight of a fascinated public. It could be said that both wireless and cinematography converged on each other during the late 1920s with the advent of sound on film.

John Gerard VK2ADN witnessed the spectacular growth of both wireless and motion pictures and has recorded his involvement through the pages of his recently released autobiography.

There is little doubt that John lived a full and interesting life. Growing up in the country with all of its advantages — and many disadvantages — working for and later as a partner with Lawrence (Pop) Penn of "Penns Pictures on Tour" (The Original Picture Showman), hearing the birth of broadcasting and later in life operating and managing the famous Tasma Picture Theatre in Coffs Harbour, NSW. John is also a life member of Lions International.

This autobiography is certainly extensive covering a large range of topics. The contents include 156 episodes with some 270 illustrations. Some of the titles to the episodes are as intriguing as their subject matter. Episode 61 recalls the Monopole Cigar which cost ten pence to buy but 24,000 pence to light. A naked bird — featherless type — is featured in Episode 150.

Amateurs, however, will be most interested in the sections dealing with the first wireless receivers and broadcasting, together with John's involvement in amateur radio. Many old timers — and some not so old! — had associations with Australia's motion picture industry, both in the production of films and the operation of picture theatres. A few amateurs were involved in the development of early Australian sound film equipment. I personally found John's experiences of running film shows and the description of film projection equipment of great interest.

The autobiography is easy to read, covers a wide range of subjects and should appeal to both OMs and YLs wishing to glance back through the first eighty years of this century, through the eyes of John VK2ADN.

Our review copy was made available by the author, John Gerard VK2ADN, QTHR, from whom copies may be obtained. Price is $14.95 plus $2.50 postage and package.

AR

CONFIDENTIAL FREQUENCY LIST by Oliver P. Ferrell

Ron Cook VK3AFW
TECHNICAL EDITOR

If, like me, you are inclined to tune over frequencies other than amateur ones, you may have wished to identify some of the many signals that are without obvious identification. The international broadcast stations always give periodic identifications, but many of the point-to-point or ship to shore stations use callsigns which are less informative. Well help is at hand in the form of Ferrell's book. Unfortunately Ferrell was killed in an accident just before the 6th edition of his book was printed.

This edition is also significant because it includes RTTY stations as well as CW, FAX and of course SSB and AM. It is perhaps stretching the point to call this a confidential frequency list as it is the sixth edition to go on sale to the public however much of the information would be difficult to obtain otherwise. The author and associates have used both government documents and reports from SWL's to check and cross check the listing to ensure that it is as accurate as possible. Of course the nature of utilities is such that some changes occur every day. The 300 pages of listings are quite comprehensive and are accompanied by some 35 pages of explanatory notes.

The advent of little boxes to add to home computers to allow copying of CW, RTTY etc, has increased the appeal of listening in to the utilities and other transmissions not intended for public broadcasting. (Provided you make no use of the information you overhear — other than to entertain yourself — then there is no reason why you should not listen in.) Many SWL's have specialised in listening to utilities around the world. They don't usually get QSL cards for reports on signals from suspected CIA operatives! You might doubt whether these would be on HF but according to this book certain bands often have badly sent CW signals which consist of code groups and whose source seems to be Central America, etc. These are more likely to originate from military or similar exercises although some covert or illicit activity cannot be ruled out.

I found the listings of shore stations running regular weather forecasts to be most interesting. These are CW and operate in a similar manner to a beacon in between bulletins. While checking some of these from interstate (to predict band openings into particular areas) I noted a weak signal in the background. The book under review enabled me to quickly identify the signal as being of Canadian origin and having a power level of 1 kW. The region 4.5 to 11.5 MHz is apparently good for working VEs for many hours of the late afternoon and through the evening. Regular DXers are probably aware of this but amateur signals are not sent on a continuous basis and surveying band conditions at times of low activity is difficult.

The listing is in ascending frequency from 4.000 to 25.000 MHz. The stations's mode, call, location, type of service, power and some clarifying remarks are given.

I recommend this book to anyone with a general coverage receiver. Get your copy from AR advertisers such as GFS. The review copy was kindly provided by the publishers Gilfer Associates.

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

QST. November 1984. Digital processing explained. (NG) Coaxial Cables. (N) Smith Chart in Basic. (C) Curtain-quad antenna. (P) The Maxcom antenna matcher. (Product Review.)

SHORT WAVE MAGAZINE. December 1984. Facts about SWR. (GN)

WORLDRADIO. January 1985. American and international news and views for amateurs. Satellite, maritime, etc. (G)

QST. December 1984. Portable 2 metres helical antenna. (C) Practical RF filtering. (PN) Coaxial cable traps. (CN)

AMSAT OSCAR NEWS. December 1984. Satellite information. Helical antennas, etc. (G)

CQ-TV No 128. November 1984. Developments in SSTV. (G) Coaxial sockets. (G) Equipment reviews, etc.

VHF Communications. March 1984. Low noise preamp for 1.7GHz (C) Spread Spectrum Technology. (T) CMOS Frequency Counter. (C)

AR

OVERWHELMING RESPONSE

All involved would like to thank all relevant members for returning the AR Questionnaires.

The response was far beyond expectations and must almost collect the record for the most returns for a voluntary return. As soon as the information is formulated on the WIA computer we hope to publish the results in the magazine.

Overall it appears most members are basically satisfied with the magazine, with only a few minor alterations.

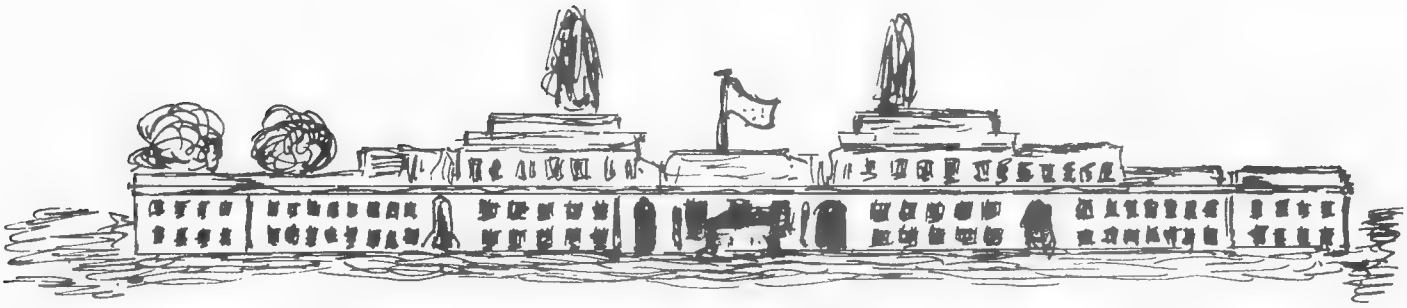
THANKYOU ALL.

Special 75th Anniversary

FORWARD BIAS

VK1 DIVISION

Contribution



AMATEUR RADIO IN THE ACT

Ron Henderson VK1RH
171 Kingsford Smith Drive, Melba, ACT 2615

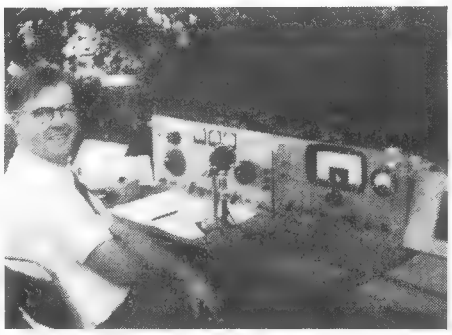
In preparing this contribution on amateur radio in the ACT for the WIA's Seventy Fifth Anniversary it was the writers aim to concentrate upon the VK1 Division, or to give it its formal name — The Wireless Institute of Australia (ACT Division) Incorporated. However, as the historical research progressed, it was soon obvious that the history of the Division, although in excess of ten years, extended over only portion of the thirty three years that amateur radio has had representation in the Territory. Consequently this article starts with the formation of the Canberra Radio Club, which after five years was renamed the Canberra Radio Society, follows its history briefly through the Riverside Hut Clubroom days and an early abortive effort to form a VK1 division, to the successful establishment of the Division in 1974. The influence of the CB boom is then examined and the history concludes with the current era of stability arising out of maturity.

THE EARLY DAYS OF THE CANBERRA RADIO SOCIETY

We read in the NSW Divisional notes in Amateur Radio in the late forties and early fifties that Roy Rayner VK2DO, of Yass was the zone correspondent and he reported activity from the ACT by VKs 2PM, 2PI, 2TV, 2GU and 2ANR (*remember until 1956 all ACT amateur stations had VK2 callsigns, VK1 being allocated to the Antarctic Territories*).

By December 1951 AR was reporting the formation of the Canberra Radio Club with Ron VK2PM as President, Les VK2PI as Vice-president, Stan VK2ASB as Secretary and twelve other foundation members. The club had some early achievements such as the first Sydney-Canberra two metre contact on 5 December 1951 between VKs 2GU and 2ANF, participation in the VK2 Field Day in October 1952 and allocation of the distinctive club call VK2ACA in November 1952 at which time the membership reached a total of 40. In September 1953 we read of a Canberra get-to-gether, the fore-runner of the famous Canberra conventions. This one was at "*the club-rooms with all mod cons*", Riverside Hut 4, and was attended by the VK2 Divisional President.

From 1954 to the early sixties little can be gleaned of the CRC's activities, no regular notes were submitted to the VK2 Divisional column in AR and the minute books have still to be located. During that period, 1956 to be precise, all ACT amateur station



Photograph courtesy E Penikis VK1VP

The late Les Pitts VK1PI.

call signs changed to the VK1 prefix, largely through the efforts of Les Pitts VK1PI and Arch Cox VK1GU. The Club's name change also took place in that year.

By 1961 we find moves afoot to create a VK1 Division, indeed it became an agenda item for the 1962 Federal Convention in Perth. The Convention directed the Executive together with the VK2 and VK3 Federal Councillors to visit Canberra in 1962 to negotiate the matter, but at the 1963 Convention the Federal President reported that the CRS advised they did not wish to pursue the matter at that time.

It was late in 1961 that the President of the CRS received a mild letter of reprimand for his annual report in the CRS Journal which was considered outspoken on Geneva WARC matters by the Federal President.

By the 60s the regular pattern of weekly meetings at the Riverside Hut 4 clubrooms was established, construction of a club station was underway and the first 6 metre contact from VK1 was achieved by VK1PM in February 1962.

The first Canberra Easter Convention was held in 1964 at the Riverside clubrooms and this set the pattern for a series of such activities.

On the VHF front AR for December 1964, in the VHF notes, records three active VK1 stations, 1CR, 1VP and 1ZRX, also that there was an OSCAR 3 satellite capability. In the second half of the sixties we find efforts to make the ACT a separate call area for contests and awards, a growing dis-enchantment with the VK2 Division which was entering a VHF expansion phase and in the view of country members not providing them much support or service.

Near the end of the decade the WIA held a successful 1969 Federal Convention in the ACT but even this action provoked some acrimonious correspondence between Sydney, Melbourne and Canberra.

RIVERSIDE HUT 4 CLUBROOMS

Very early in its existence the CRS was able to

Photograph courtesy E. Penikis VK1VP

Canberra Radio Club outing near Mount Gingera in September, 1952.

obtain a lease of Riverside Hut 4 as a clubroom. The area had originally been a hostel but was later utilised by the Department of the Interior as accommodation for clubs, societies and civic groups.

With the formation of the Council of Cultural Societies and construction of the Griffin Centre in Civic, the Department commenced a demolition programme at Riverside. The CRS correspondence files show letters dating from 1964 requesting vacation of Hut 4 but alternative premises, at no or low cost, were not easy to come by. Indeed it was not until June 1971 that the Society vacated its old clubrooms after negotiating with Civil Defence to use their training room in Civic on a weekly basis. Interestingly enough one very sub-standard Riverside hut remains today, as a snackbar/canteen for government workers in the area.

FORMATION OF THE VK1 DIVISION

Following involvement in the WIA novice licence inquiry and re-forming of a WICEN register of interested amateurs, the CRS turned its attention to the formation of a VK1 division. The minute book records that in June 72 Federal Executive was asked about the requirements to set up a division and VK2 support was requested. The club membership list showed 40 names (39 callsigns) and the majority were in favour of forming an ACT division.

The mechanics of forming a division first called for the creation of an incorporated body separate from the CRS and at the October 1972 AGM the membership voted for this action. In April 1973 the constitution was forwarded to Federal Executive and the 1973 Federal Convention specified several matters requiring resolution prior to formal admission as a new division. Despite this affirmative decision the 1974 Federal Convention spent a considerable time in committee discussing the pros and cons of small divisions with equal voting rights and an inability to bear a large proportion of WIA convention expenditure before voting for the immediate admission of the ACT Division to the Federal body. The new Federal Councillor and Alternates then took an active part in the Convention.

Up until this time the CRS was obliged to tread a wary path in its dealings with the VK2 Division. Much concern had built up nationally over 2 metre repeater band plans coupled with a lack of confidence in the management of the VK2 Council. Indeed on at least two occasions in two years the CRS was represented, with large proxy lists, at Special General Meetings in Sydney.

Upon formation of the incorporated, but not yet Federally accepted VK1 Division the CRS handed over all its assets except for a token sum of cash, with provisos, including one that the Division renew the VK1ACA callsign for a number of years. The beacon and repeater projects were also handed over and the CRS went into recess in August 1973.

Some of the early actions of the new Division were to replace the CRS bulletin "The Repeater" with a new newsletter "Forward Bias" so named to indicate leadership rather than reiteration; to obtain a licence for VK1WI and to originate news broadcasts weekly on Sunday evenings at 8pm local time on 80 and 2 metres. A WICEN co-ordinator was appointed and AOCP classes were commenced.

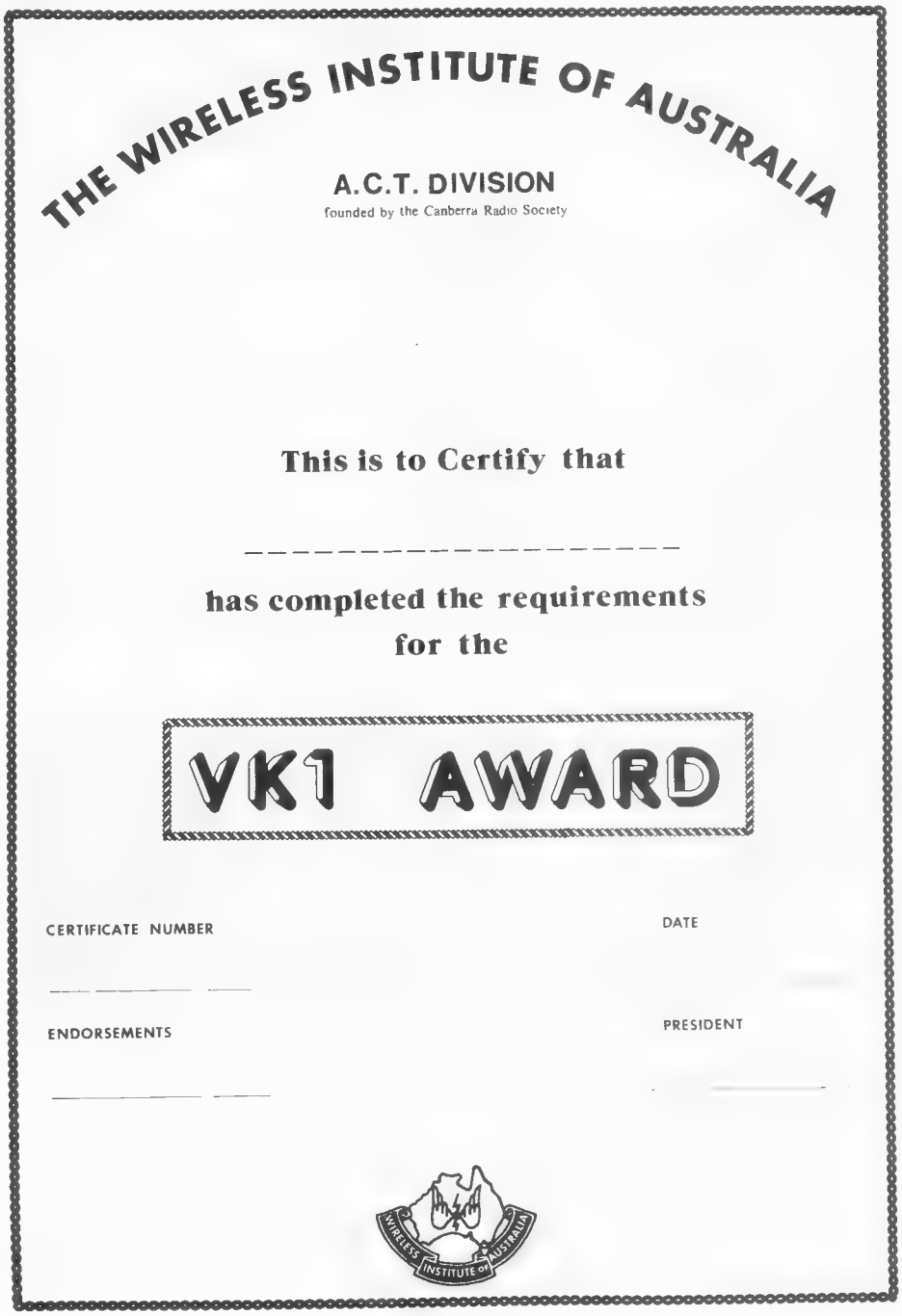
An Easter Convention was held in 1975 and that year saw the expulsion of a member for unlicenced CB operations culminating in a prosecution. At the request of the membership the monthly meeting format was revised to reduce business matters and place increased emphasis on technical lectures and presentations. Fox hunting commenced in 1976 and hunts were held regularly, both of the direction finding and talk-in variety. These afforded members practice which showed up at amateur radio conventions in NSW and the ACT.

Once again the matter of a home or clubrooms for the Division was raised and a sub-committee was formed to examine the situation; sadly their recommendations led to no permanent solution and monthly meetings continued at the Griffin Centre, Civic.

THE CB ROOM

The mid seventies brought with them the Citizens Radio boom and its inevitable impact upon amateur radio. The ACT Division was very active in the formulation of a WIA policy on CB, extending to liaison and technical advice to the newly formed National Citizens Radio Association in their quest to legalise CB. The Division and indeed most thinking members of the WIA saw the citizens radio boom as a potential source of expanded WIA membership, despite its attendant interference and "pirate" operator problems, due in part to an out-of-date Wireless Telegraphy Act which severely constrained Departmental control of illegal operating.

Following a good start with CB liaison an incident arose which led to the resignation of the Divisional President of the day and an attempt to reform the Canberra Radio Society as a society of amateur radio "excellence". The President held strong views on the value to the Division of its own clubroom premises, indeed some ten years earlier when President of the CRS he had proposed a similar course of action, without success. The Division entered into negotiation with the WIA Federal body with the aim of



THE WIRELESS INSTITUTE OF AUSTRALIA

A.C.T. DIVISION

founded by the Canberra Radio Society

This is to Certify that

_____

has completed the requirements for the

VK1 AWARD

CERTIFICATE NUMBER

DATE

ENDORSEMENTS

PRESIDENT

building a National Headquarters in Canberra; utilizing a portion of the building eventually for a Federal office, a portion for an ACT Divisional office and letting the remainder to secure income to finance the investment. In the event the proposal caught the WIA at a time of expanding inflation accompanied by budget over-runs which meant they were unable to pursue the scheme. The President then consulted with CB organizations as to their interest, but this was considered by the membership beyond his terms of reference and his resignation was accepted.

STABILITY WITH MATURITY

Following the CB boom the VK1 Division settled down to steady progress on several fronts. VHF enthusiasts were catered for by the installation of a second 2 metre repeater, this time located on Mt Ginini in the Brindanella Range. The repeater, having one of the highest sites in Australia, provides a coverage extending from Albury in the south to Newcastle in the north east and Tathra on the south coast when conditions are good. Interest in WICEN was revived and a portable generator was purchased, financed partially by a community assistance grant.

April Fools Day 1978 brought a major setback to the Division, the Mt Ginini repeater was stolen and use of the site came into jeopardy. The same year VK1PA sailed as a radio operator/scientist crew member of Solo on a voyage to Antarctica, "Forward Bias" went bi-monthly as, in the editors words, *"a measure of the apathy in the Division"*, then to cap it all VK1 won the Remembrance Day Contest and coveted trophy.

The membership voted unanimously to restore the repeater, an appeal for donations was launched and construction of a replacement unit commenced. In parallel a concrete block house was constructed on Mt Ginini by volunteer labour to guard against a repeat of the theft. Much later the original repeater was recovered by police in Melbourne and the Division ended up with a reserve unit which permitted maintenance by exchange of major assemblies.

As part of a move to publicise the VK1 call area and ensure that VK1 stations were available for contacts, a sub-committee was set up to plan a VK1 award. The Award which was introduced in 1980, has higher level endorsements for contacts with greater numbers of VK1 stations. A net has operated on 80 metres after the Divisional Broadcasts on Sunday evenings for over four years and several Australian stations have achieved the 100 contacts endorsements, no mean achievement when there are only some 320 licences total in the ACT.

Late 1979, early 1980 interest in UHF led to the commissioning of a temporary 70cm repeater by the CRS. This project was later taken up by the Division, however the repeater is still not operational on its final site, Mt Ginini. This long gestation is indicative of activities of a complex nature when supported by a small active UHF membership base.

An original Gestetner quality QSL.

By 1980 the *"Worked All Manuka Mobiles"* or *"WAMMY"* Award had arisen to bring a degree of levity to serious award hunting. To achieve the award stations must contact other stations mobile in the Canberra suburb of Manuka and exchange odometer readings. Gestetner quality paper QSL's frequently are issued by the activating station at Manuka and the award is a high quality photo copy of a "rare master" certificate. With the incorporation of Divisional newsletters as columns in the journal, Amateur Radio, June 1980 saw the last local issue of "Forward Bias". Even so news sheets have appeared from time to time at monthly meetings to bridge the leadtime gap of the magazine.

The year also saw the relocation of the Mt Majura 2 metre repeater to Black Hill, near the Tidbinbilla tracking station and installation of the 2 metre beacon at the vacated site.

In the International Year of the Disabled, 1981, Chitary Moriyama JH6THP visited Australia and coupled with his visit a radio club and station VK1WVH was set up in the rehabilitation unit of the Woden Valley Hospital.

By now the Division had formed strong views on its operations and objectives. A membership drive was made and free QSL services restricted to members. The annual JOTA involvement brought co-ordination difficulties, lack of control of youthful participants and a perceived lack of awareness in the scouting organization, a situation fortunately not as apparent with the guiding movement.

Prudent financial management, based upon an annual budget, allowed surplus funds to be invested in both 1982 and 83; perhaps this is a small beginning to realisation of the vision of Divisional clubrooms.

In 1982 the first of a successful annual public relations exercise was conducted with the operation of a special event amateur station, AX1ITU, in a public shopping mall on 17 May, ITU day. This first display station was manned by the local 10-X Chapter but the Division has organised it in recent years. Public exposure of amateur radio has also been achieved by operating the Divisional station VK1WI from a public recreational park each John Moyle National Field Day, utilising a roster of volunteer operators to submit a 24 hour multi-operator contest log entry.

Amateur television and amateur satellites came to the forefront in 1983 and 84. The Division, after a successful ATV demonstration night by the VK3 roadshow, formed an ATV group whose efforts will culminate shortly with the commissioning of an ATV 70cm to 50cm repeater at the Black Hill site. An amateur satellite interest group, which included several tracking station employees amongst its numbers, set up and operated a special station, VK1ORR, for the STS-9 Shuttle Mission in which Owen Garriott, W5LFL made contact from space with amateur operators around the world.

By 1983 sizeable elements of the Department of Communications had moved to Canberra, a move to be completed in June 85 when the last branch, the Operations Branch relocates. The VK1 Division, perceiving a need for the WIA to maintain close relations with the Radio Frequency Management Division policy makers of the Department, offered to assist the Federal Executive by providing two Canberra liaison officers, VK1RH a former Federal Councillor and VK1JL (formerly VK1CDR) a former member of Executive.

The Division holds the view that much of the routine supportive work for amateur radio in Australia can be carried out by small informal, as well as formal, sub-committees of the Federal Executive, tasked to progress specific issues. This approach utilises the existing specialist and diverse skills of members and reduces the demands on the VK3 membership who must not only appoint office bearers for their own Division but also provide the greater number of Federal Executive members. It also delays the time when further paid staff need to be employed by the Institute.

SUMMARY

Amateur radio has been alive, well and represented in the ACT for over thirty three years. For the greater period the voice of the amateurs was the Canberra Radio Society. Building upon that foundation the ACT Division, the newest division in the WIA, is now in its eleventh year and has passed through the restless years of adolescence to become a mature responsible body, not afraid to voice its opinion and contribute to the future of our hobby.

AR

An early VK1 award

CHRONOLOGICAL LIST OF PRESIDENTS

Canberra Radio Club

1951 Ron May VK2PM
1952 Stan Brown VK2ASB
1953 Norm Ritchie VK2ANR
1954 Norm Ritchie VK2ANR
1955 Norm Ritchie VK2ANR
1956 Ken Finney VK2AIL/1AIL

Canberra Radio Society

1957 Ken Finney VK1AIL
1958 ?
1959 ?
1960 Bud Pouncett VK2AQJ — Les Pitts VK1PI
1961 David Gothard VK1DG
1962 David Gothard VK1DG
1963 John Bennett VK1ZJB
1964 John Bennett VK1ZJB
1965 Ken Mattei VK1KM
1966 Ken Mattei VK1KM
1967 Steve Grimsley VK1VK
1968 Chas Rann VK1CR
1969 Chas Rann VK1CR
1970 Ted Pearce VK1AOP
1971 Steve Grimsley VK1VK
1972 Rej Miles VK1MP
1973 John Lauton VK1JL

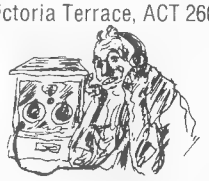
Wireless Institute of Australia (ACT Division) Inc

1973 John Lauton VK1JL
1974 John Lauton VK1JL
1975 Ted Pearce VK1AOP
1976 Ted Pearce VK1AOP
1977 Steve Grimsley VK1VK — Ted Howell VK1TH
1978 Ted Howell VK1TH
1979 Andrew Davis VK1DA
1980 Andrew Davis VK1DA
1981 Bill Maxwell VK1MX
1982 Bill Maxwell VK1MX
1983 Alan Hawes VK1KAL
1984 Alan Hawes VK1KAL

CANBERRA'S PIONEER BROADCASTER

Fred Robertson-Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT 2600

Jack Ryan, who was the founder of Canberra's first radio station 2CA, died in June 1984 at the age of 87. He left behind a tape of memoirs which provides a delightful insight into the early days of radio in Australia. The tape has been transcribed into a booklet by 2CA.



Ryan's first contact with wireless was during the Great War when he served for about six months with the 1st AIF Wireless. This was totally CW, of course, and using spark equipment. He later gained a Marconi Marine Operators Certificate, also on spark equipment, as he noted, he had never seen a valve. He also did about seven years in the Post Office as a cadet mechanic, doing just about everything that could be done in telephony and telegraphy at that time. Ryan mentioned that his other 'qualifications' included having done a little electrical contracting, a Mines Department certificate to drive a steam engine and a diploma for playing the piano!

OUTSTANDING RESULTS

By the late 1920s, Ryan was running a small radio, electrical and musical business in the Canberra suburb of Kingston, and struggling to make a living — the population of the "Bush Capital" was then around 8,000. About 1930 he was "bitten by the mad wireless bug" and, with his Marconi certificate, obtained an amateur licence. In those days, of course, the amateur licence was still called an experimental licence (in both Australia and the UK the experimental licence became an amateur licence after World War II), and he was issued with the callsign VK2LE. This must have been one of the first VK prefix callsigns in this area as the VK prefix was adopted in 1929 to replace the OA series, and, of course, the ACT was not allocated the VK1 prefix until 1957. As Ryan had to rely on his memory to make the above mentioned tape (most of his radio related records were destroyed in a fire at 2CA in 1955) he was not able to recall too much detail of his purely amateur activities. He did note though, that his equipment was home brewed and "very primitive", and that he started operating on the 40 metre band with about 2 watts on CW. He had a lot of fun with a lot of other amateurs in the same position, particularly on their Sunday morning sessions. They were all very keen, all experimenting, and some achieving outstanding results.

MAN IS KING

Around that time, the news came out that radio station licences were to be issued for country areas and Ryan applied for a licence for Canberra as he thought *"it wouldn't be a bad idea to help sell radio sets and records"*. Whilst he didn't consider himself to be qualified to run a radio station, he relied on the fact that "amongst the blind, the one-eyed man is king"! In his application he promised to give them church services and whatever else seemed, at the time, to be the proper thing to be put in an application for a radio station licence.

LOAN OF A JAR

When the licence was issued for 2CA, with a power of 50 watts, Ryan was deluged by people trying to sell him a transmitter, including AWA, but he decided to build it himself. He then turned his attention to acquiring equipment and parts, and bought a 5kV oil filled transformer from the Department of the Interior "for a song", two towers from the Royal Military College for a similar price, and steel cable for guy wires from a rain making balloon experiment. He also acquired various second-hand parts from disposals stores, the Post Office, the Navy or from wherever he could get it. The Institute of Anatomy lent him a large glass jar to make a variable condenser for his linear after two had broken on the way up from Melbourne. Ryan recalled that *"In desperation, they took a body or something out of one of their jars and lent it to me until a third jar successfully arrived unbroken"*. He had to buy some of the equipment new, including the valves, but at a total cost of £200, 2CA officially opened on 14 November 1931 from his shop in Kingston.

FROM THE LION'S DEN

Ryan estimated his listening audiences at that time was around 800 but, despite this, he did everything he could to get as much variety into his programming as possible, musically, topically and to an extent politically. He broadcast concerts from the Albert Hall, regattas from the aerodrome, political broadcasting from Parliament House, and a broadcast from inside a lion's cage at a local circus (and even managed to get in an advertisement for Arnott's biscuits whilst doing it). He did what was probably the first Australian broadcast for the Communist Party, and charged their President, Lance Sharkey, the unheard of sum, in those days, of £10 for a ten minute broadcast.

HERE IS THE NEWS

It was not long before 2CA decided to start a news broadcast, and Ryan hoped to buy news from the local paper, the Canberra Times, but this fell through due to the paper's news being under contract thus not allowing them to sell it to a third party. Ryan's solution to the problem was simple, he picked up a copy of the Sydney Morning Herald at the railway station on his way to the transmitter, which was by now located at Molonglo, took what he wanted from the paper and paraphrased it here and there to avoid any copyright problems. The station also began another practice which, nowadays, would be considered highly unethical. Every now and then, in among the general news, they'd say things like *"There's no truth in the rumour that hats can be bought anywhere cheaper than at Maloney's"*. They would then go on with the next news item. In Ryan's words *"Nobody seemed to mind and I think that Reg Maloney sold quite a few hats out of things like that"*.

THE SPORT OF KINGS

The Melbourne Cup was another feature which was unethically acquired. Ryan used to go a few miles out into the bush away from interference, pick up an appropriate station broadcasting the Cup, dial 2CA from a handy telephone and hook the radio receiver across the telephone line. This resulted in a no noise, no interference perfect broadcast of the Cup from 2CA.

COOKING BAKELITE

By about 1935 the station was still broadcasting in sessions, usually at breakfast time and lunchtime, and the station was given permission to up the power to 500 watts. Ryan, like many amateurs since, found out what RF can do by way of heating. They had a fixed condenser made of fragile zinc plates and, to provide a bit of strength, had slips of bakelite placed between the plates. The bakelite started to cook so they had to pull it out smartly and put in slips of glass instead. This had the happy result of causing a great improvement in the power output, but also resulted in the insulation on the jumper wires between the tank coil and the variable condenser bursting into flames.

METEOROLOGY SERVICE

In between sessions, the station also doubled as Canberra's first Air Traffic Control centre. The notorious winter fogs in Canberra made it difficult for aircraft to find the airfield and the Department of Civil Aviation made a contract with 2CA to work the Sydney flight into Canberra. This continued for about eighteen months from 1935. As the station broadcast on 285 metres and the aircraft were on 900 metres,

they made a receiver to cover the aircraft's frequency and the Department installed receivers in the aircraft to cover the 2CA frequency. The arrangement should, in theory, have made two-way conversations, most of which were in CW, possible but the 2CA carrier tended to swamp everything including the broadcasts of the horse racing by inter-state stations which were avidly listened to by Canberrans when 2CA had shut down between sessions. This problem was solved by working the aircraft between races! Ryan and his off-sider even provided weather reports for the aircraft, and swotted up on sufficient meteorology to be able to provide this service. They were, however, always 610 metres out in their cloud heights as they gave the heights above sea level instead of above airfield level, but all the pilots had instructions to make allowance for the error.

Ryan's interest in aviation may have arisen out of this branch of his broadcasting career, and he became a foundation member of the Canberra Aero Club — although he almost put the club out of business when he crashed its only aeroplane.

INK RECORDER

By 1938 the station had increased its power to 2,000 watts and had shifted the transmitter to the present site at Belconnen — though the first site they chose at Belconnen was gazumped by the ABC. They imported a Blawknox tower from America, believed to be the first and only one ever imported here, for the cost of £1,200 installed. It had no guys and was supported on large insulators which would take either pressure, compression or tension, according to the wind. It was of sufficiently unique design that all the mast and tower manufacturers came and had a good look at it. By this time 2CA had become part of the Macquarie Network, and they installed what was called a Caihlo circuit on the line to 2GB in Sydney. This circuit allowed a Morse key to be used for sending messages over the line without interrupting the programme. An ink recorder was installed in the studio to give a hard copy of any messages and to allow anyone to decode the messages.

THE END OF AN ERA

Ryan sold most of his holdings in 2CA, but stayed with the station as Chief Engineer. During the Second World War he joined the RAAF where his talents were quickly recognised and he made contributions in the radar section. After the war he taught electronics in the Newcastle area with an outstanding pass rate among his students. His death last year marks the passing of an era in both the amateur and broadcasting history of Australia.

AR

THE BLACK HILL ATV REPEATER — VK1RAC

Kevin Olds VK1OK
238 Southern Cross Drive, Latham, ACT, 2615

They say everything comes to those who wait which, it is hoped, will be true when the VK1 ATV repeater goes to air early this year. This is the story of the repeater thus far.

The story began in mid 1982 when it was decided by the ACT Division of the WIA to bring the ATV roadshow gang from Melbourne to speak at the October 1982 General Meeting. This involved a host of arrangements including changing the usual meeting night from a Monday to Saturday. This was all duly accomplished and a very successful meeting was held which lit the spark of ATV in VK1 land.

A group of those interested in ATV got together and began the process of getting active on 70cm ATV. Before any transmitters were on air it was known that Canberra's terrain was going to make simplex ATV a difficult proposition. Thus was the repeater born.

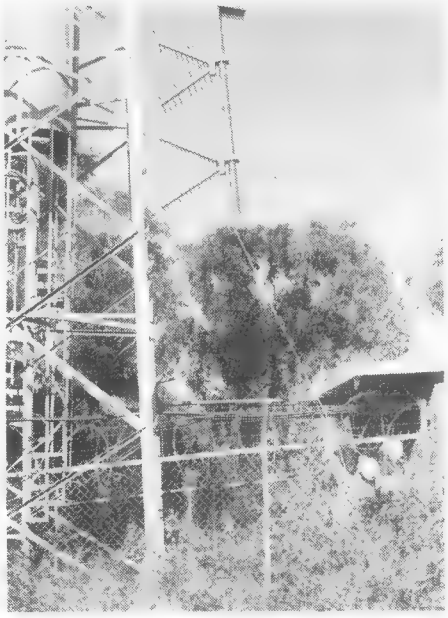
As the Division already had two active repeater sites it was decided to use one of these, Black Hill the site for VK1RAC the 2 metre repeater on CH 6900. Black Hill is the site for the collimation tower for the Tidbinbilla Deep Space Communications Complex and also houses Telecom equipment. The site is closer to the city than Mt Ginini and despite its lower elevation is a far better prospect for ATV. A 90 degree beamwidth antenna could cover all Canberra. The site owners agreed to our use subject to one condition — the fourth harmonic of the repeater's output frequency, which falls in the 2300 MHz band, must be unmeasurable on the Tidbinbilla equipment. This equates to being — 184dBW! The 2300 MHz band is of particular interest to the Tidbinbilla complex hence the condition.

Undaunted by this constraint planning continued. Contacts were made with the VK3 and VK5 ATV repeater groups and ideas gathered. The basic design principles were then laid down:

- *Input 426.25 MHz ATV with output on 579.25 MHz.*
- *A voice input would also be provided on 147.4 MHz to permit full duplex audio operation.*
- *All control would be by microprocessor, thereby allowing for greater facilities largely by software development.*
- *Repeater control would be via touch-tones on either audio input.*

Facilities to be provided ultimately include:

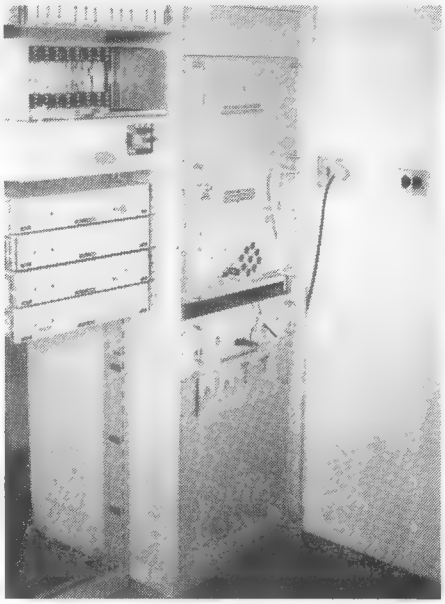
- *full duplex audio using 2m*
- *test pattern generation*
- *walking board displays to publicise coming events etc*
- *audio source selection*
- *video source selection*
- *video processing*
- *display of repeater command codes etc*



The Corner Reflectors being raised up the Collimation Tower.

Detailed design and construction work commenced during 1983 and efforts to date were shown to the Division at the October 1983 meeting — the October meeting had become ATV night. Test transmissions using portable equipment had confirmed the suitability of Black Hill for an ATV repeater.

Work continued in 1984 as the small group pressed on. Some antenna hardware was erected on site and coax cables installed before winter set in. A recent change in antenna design due to feed problems will mean some changes to the hardware already installed but such is life. The microprocessor controller has grown to two, one for control purposes and one for the video display functions. October 1984's ATV night saw the demonstration to the membership of the receiver, audio and video selection and micro-processor controller. The transmitter was also displayed in its non-working state. Work is now (Jan 1985) almost complete on the transmitter stages and filters and systems testing will begin soon.



The VK1RAC equipment rack.

It's been a long hard road but there is light at the end of the tunnel. In true amateur tradition the repeater is largely home brew which adds to the development time but keeps the cost down, the knowledge level up and guarantees that the end product will do exactly what we want. When complete the repeater will be a valuable asset to the Division. Most members will be able to watch its output on their home television sets. Proposed uses already include Divisional broadcasts, broadcast of educational material for members as well as delayed broadcasts of the monthly meetings. No doubt other applications will suggest themselves.

Top Left

From left: Dick VK1ZAH, Bill VK1MX and Neville VK1NE starting to haul all the equipment out of the truck.

Bottom Left

VK1MX and VK1ZAH with some more equipment including the corner reflectors.

The corner reflectors being raised up the collimation tower. Various other NASA antennae is on the tower and the channel 6 repeater VK1RAC antenna is at the very top.

The collimation tower.

This story wouldn't be complete without mentioning the people whose hard work and effort have made the repeater possible — Paull Bell, Greg Black, Jim Clark, Reg Dwyer, Dick Elliot, Neville Eyre, Dennis Gibson, Ron Henderson, Bill Maxwell, Kevin Olds, Brian Rhynehart and Richard Siede plus those others who have helped in many small ways.

AR

QSP

COMPANY ANALYSIS BY COMPUTER

The first phase of a $36.75 m computerised business reporting service, which delivers print-out assessments on 250,000 UK businesses directly to its international customers' print terminals and personal computers has been inaugurated by Dun and Bradstreet, the London-based commercial information agency.

Named DunsPrint, the service is claimed to be the first of its kind in the world. Separate European databases will be computerised on a phased basis with the Netherlands, France, Belgium and Eire having their own centres by 1985. By that time, DunsPrint files will have information on more than five million European businesses. Information can be cross-referenced and transmitted internationally.

Other European countries, including West Germany, Italy, Spain, Switzerland and Portugal, will be brought into the DunsPrint scheme by 1986.

A customer needs a print terminal or personal computer and a telephone. He or she dials an assigned telephone number which connects to the firm's database in London. Hard-copy business information can be printed in seconds, providing a summary of a company's history, status and credit-worthiness.

from Information Technology from Britain

AR

BLACK MOUNTAIN TELECOMMUNICATIONS TOWER

Fred Robertson-Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT, 2600

The ACT has quite a number of important communications facilities in both Canberra city and the surrounding territory ranging from the Naval and RAAF stations at Belconnen (both of which are well known to amateurs due to their potential and actual interference abilities at times), to the Space Tracking stations in the southern ACT and the Department of Aviation facility on Mt Ginini. In fact, a large number of the hill tops have antennas of some form or description on them. However, the most outstanding and arguably the most important facility is the Telecommunications Tower on Black Mountain. The tower itself is not unique, there being at least two dozen others in various parts of the world, nor is it the tallest as at 183 metres it is only about one third the size of the Toronto tower. It is though, one of the most outstanding due to its award winning design and its location on a mountain top in the middle of the city, and provides Canberra with a unique land-mark.

The necessity for the Tower came about through the dramatic growth in telecommunications traffic in the region over the past thirty years. Canberra is a significant source and sink for trunk line traffic as well as a major repeater in the main Sydney-Melbourne trunk route. The increasing traffic on the trunk route, in the SE region and in Canberra itself was liable to be severely inhibited by the limitations imposed by the finite number of lattice type towers that could be accommodated on the various hill tops around Canberra. The only options open were to further clutter up the hill tops or to try and centralize as many of the facilities as possible in the one unit — with the added advantage of being able to remove quite a number of the existing lattice towers some of which were beginning to look like veritable hedgehogs due to the number of antennas on them.

The desire for a centralized facility evolved into the concept of a single aesthetically acceptable tower which would meet all requirements known and predicted, and flexible enough in design to cater for shifts in emphasis between the types of services to be catered for. These services included telephony and TV relays, mobile radio and paging and TV/FM broadcasting. It was also considered that such a tower should provide facilities for all requirements for up to fifty years, without any significant extension to the tower structure or associated buildings.

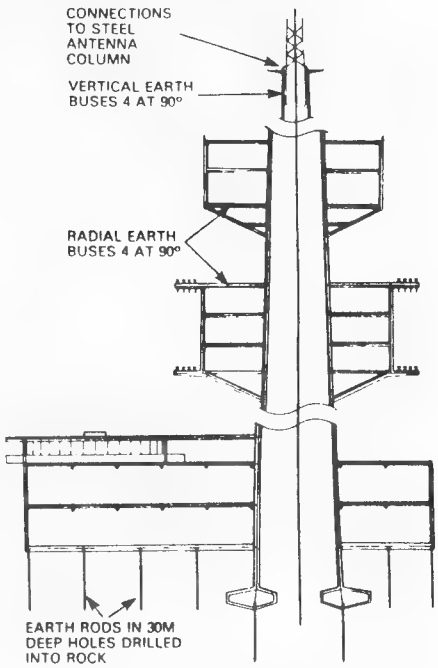
The design of the tower had, among other things, to take into consideration the number of antennas likely to be required as well as the types of antennas needed to achieve the ERP's required for TV and FM broadcasting. In view of the rather broad vertical radiation patterns needed, it was not possible to use very high gain antennas which would have given narrow vertical radiation patterns with resultant difficulties in achieving sufficient "null fill" down to the 10 degree depression angle specified. It was also desired to minimise the cross sectional size of the tower to reduce the visual impact and, as the antennas for the broadcasting services were to be co-masted, each had to be limited in vertical aperture and hence gain. In view of the large number of TV and FM channels to be catered for, it was decided that multi-channel systems should be employed as much as possible. The solution adopted was to design for four stacked antenna systems as follows:

- *TV band II (channel 3 and 5 later changed to channel 3 and FM)*
- *TV band III (channel 7 and 9 later changed to channels 7, 9 and 10)*
- *TV band IV (up to four channels)*
- *TV band V (up to four channels)*

The design also had to take into account antennas for around 80 channels mobile and radio paging, and the parabolic dishes required for the full deployment of the microwave frequency bands between 2 GHz and 15 GHz in each of three directions. In the case of the microwave dishes it was considered essential to reduce waveguide losses and intermodulation noise as much as possible by locating the transmitters as close as possible to the dishes. Thus, the three floor "drum" design evolved, with the height of the bottom of the drum being set by the minimum height needed to give satisfactory paths to existing and future repeater sites. The required co-masting of a number of antenna systems with the electrical requirement to have a decreasing maximum cross-sectional size of column with increasing frequency band of operation resulted in the need for a long and fairly slender structure which would have to take account of the effects of wind loading, solar heating and the low temperatures experienced in the Canberra area. The resultant tower design is shown in figure 1.

Another design problem to be overcome was to allow for sufficient space inside the tower column for cables, feed systems and access, particularly for the large diameter TV/FM broadcasting feeder cables. The usual practice was to feed each antenna with two cables and, in the case of the UHF bands, this involved plastic jacketed corrugated outer co-axial cables of 6 1/8 inches diameter with a large bending radius. For runs from the microwave equipment to their associated dishes, flexible corrugated plastic jacketed elliptical waveguides were adopted. There was also the need for, where cable penetrated through the concrete tower shaft, floor slabs and building walls, the penetrations be fire rated and weatherproof. Eventually an existing commercially available multi-cable transit frame (MCT) system was adopted which consisted of a cast-in steel frame with modular silicon rubber locks, either solid or in two halves, with an appropriate sized hole in them to seal the cable to be installed.

An important aspect of the tower design was the need for the protection of both personnel and equipment from lightning strikes. This was accomplished with a standard lightning rod atop the antenna column, with the column tied to the reinforcing steel of the tower structure, various radial earth buses and 30.5 metre earth rods at the base of the tower. The system was also tied to various vertical down conductors, reinforcing in wall columns, antenna mounting rails, window frames and other metal components. The resultant system encloses both the public and communication drums in a Faraday cage. The system is shown in figure 2.



Lightning Protection System

Figure 2.

Apart from its importance as the transmitting station

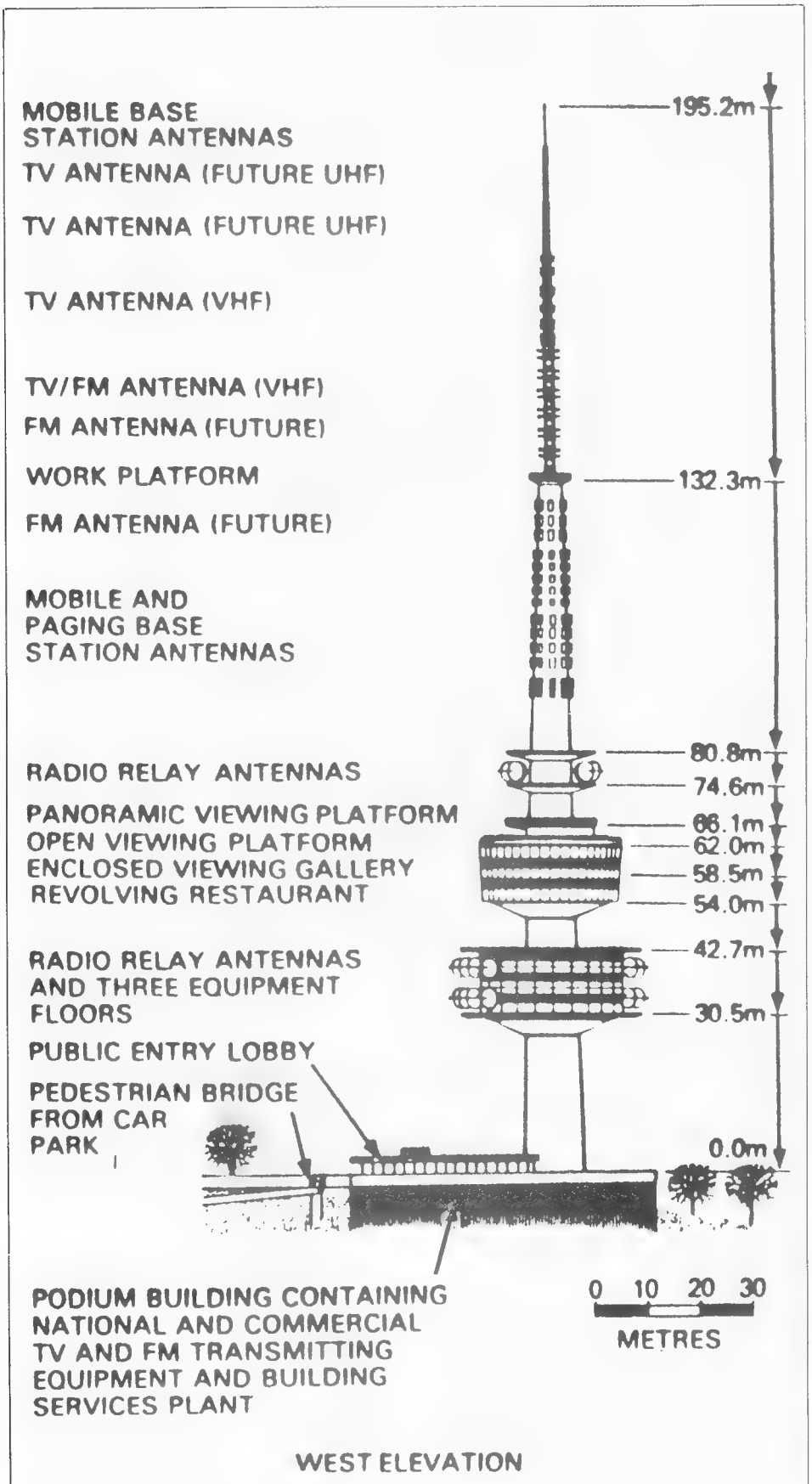


Figure 1

for Canberra's TV and FM broadcasting services and as a base station for other radio communication facilities, the tower is, as mentioned above, a key station in trunk communications for Canberra and an important node in the intercapital broadband network. Digital and analogue bearers routed through the tower are carried on both co-axial cable systems and on microwave radio links and, in addition to the telephony links cater for up to five simultaneous interstate television relays as well as national regional relays from Sydney and Melbourne and relays originating in Canberra. It is expected that many of the TV relays will transfer, in due course, to the national communications satellite and that, in the longer term, a trunk optical fibre cable system will be installed on the route. This will allow for recovery of some of the capacity for other services which, at the current rate of growth will be completely taken up in five to ten years. There is also expected to be considerable growth in the mobile radio services on the 80, 160, 450 and eventually 900 MHz bands, and the tower will accommodate the public mobile telephone service which is scheduled for Canberra in May 1985.

Briefly, in regard to the technical side of the broadcasting equipment in the tower, the national television service is provided via two AWA type TVB-10C transmitters operating in a parallel arrangement with an output power rating up to 12 kW peak vision power. The associated sound transmitters are frequency modulated and produce 1 kW output power. The Marconi driver stages of the transmitters are IF modulated with the VSB shaping done at low level with an IF of 38.9 MHz. The FM sound and VSB outputs are combined into one feeder in an external diplexer. Each complete transmitter uses three air cooled valves, one each for the vision and sound amplifiers and one for the driver stage vision output.

The FM transmitter is a Siemens type SU 10/6209, though the spare NEC unit is currently in use. The stereo multiplexed signal is fed to a 50 watt VHF FM modulator which is used to drive a 10 kW PA stage. The output is fed via a directional coupler to the TV/FM diplexer and then to the antenna system via a patch panel/antenna splitter.

The antennas for the national and commercial services are identical designs and comprise sixteen broadband dipole panels, four on each face at four levels. Each panel contains two or four full-wave dipoles on a reflecting screen and are fed in parallel to obtain the desired radiation pattern. The antennas have approximately 10 dB gain.

The commercial transmitters are in a separate, locked area and are remotely controlled from the studios of the commercial station. Their transmitters comprise a pair of NEC units rated at 20 kW. The SBS UHF transmitter, which utilises a water cooled 40 dB gain Klystron, is also an NEC unit, and is rated at 30 kW. It is, however, run at 20 kW due to antenna problems.

AR

Black Mountain Telecommunication Tower.

COMMUNICATIONS TOWERS IN THE ACT

Honey Suckle Creek Tracking Station.

Tidbinbilla Deep Space Tracking Station.

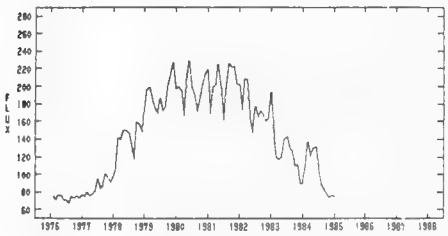
Transmitter Relay at Mount Ginini.

Orraral Valley Tracking Station.

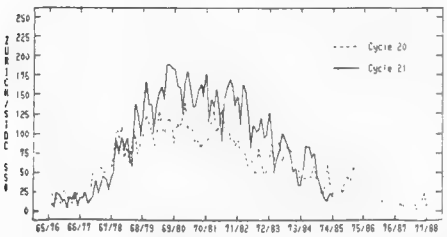
HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Is it possible for band conditions to become less productive than they are at the present time? Well according to Lee in KH6BZF Reports and by looking at the graphs he has produced, they can and will. The graphs reproduced from Lee's publication indicate that we have not reached the bottom of the barrel yet. Not a pleasant thought but the bands do behave unnaturally at times and one can be quite surprised. 28 MHz, for example, should never be overlooked. For proof, listen when a JA contest is on, and at times like this, it can be quite active.



SOLAR CYCLE 21 — 10.7 cm FLUX



SUNSPOT CYCLES 20 and 21

Reproduced by courtesy of Lee KH6BZF and KH6BZF REPORTS

Newcomers need not be deterred, there is plenty of DX around for the patient operator with the correct technique. Listen and join in some of the contests this year. You will increase your operating skills, make new friends and formulate your own style of chasing the elusive countries that you need. Good luck and good hunting.

A tip of good news from Lee is that good HF possibilities could occur between the 4th and 12th of this month. That would be a nice Easter present for all DXers!

CLIPPERTON

At the time of writing these notes, the countdown for the Clipperton Expedition was still proceeding. The boat, a 35 metre sport fishing vessel named the "Royal Polaris" was due to leave San Diego, duly loaded with all the necessities for a successful expedition, on the 27th of last month, picking up the operators who include W6s-SZN, OAT, RGG, N6GJ, KK6X, N7NG, K3NA, WA7NIN, F6GXB, F9LX, DJ9ZB, TI2CF, XE1ZZA, JG3LZG, FO8GW and HL, in Mexico three days later and an estimated time of arrival at Clipperton is the 3rd of this month.

All QSLing will be done through the Yasme Foundation, PO Box 2025, Castro Valley, CA 94546. Cards with no return self addressed envelope will be sent via the bureau.

The operators are planning for three stations to be on air around the clock and hope to utilise all bands from 160 to 10 metres on CW and SSB with maybe some RTTY. If the equipment can be obtained Oscar will be catered for too.

The cost per operator is in excess of US$3,500 and that will not cover even a small proportion of the total expenditure. Donations are sought and in the event of a non event they would be returned immediately.

Let us hope we hear Clipperton activated for the first time in more than half a decade.

Those that have worked it and have it confirmed please give the "newer" licensees a big chance at this one!

NAVASSA

Another DXpedition scheduled for the 4th to 9th of this month is Navassa, which is being actuated by mainly Jamaican amateurs. According to all reports the US Coast Guard has given approval and it will not be like the HH0N operation, which didn't obtain accreditation.

SILENT KEY

Hilda "Gem" Collins VE3COA/G3YXT passed away on the 30th January. "Gem" as she was affectionately known by DXers world wide, from the various areas she operated, will be sadly missed. Condolences to George VE3FXT.

GOING HOME

John ZD9CC, who has been the School Principal at Tristan de Cunha, has completed his tour of duty. QSLs to ZS2DK.

CHINESE STATIONS ACTIVE

The Chinese stations are very active, including the latest addition, BY5RF, the station of the Chinese Science and Technology Association of the Fujian Government. This well equipped station also runs Oscar 10, Mode B.

CZECHOSLOVAKIA

The licence structure in OK falls into the three following categories "A", "B" and "C". The "A" licences is allowed 300 watts output whilst the "B" type is allowed 50 watts on all modes. Class "C" are allowed use of part of the 1.8, 3.5 and 28 MHz band with 25 watts output. There are also phone only 144 MHz licences and "youth" type permits for those between 15 and 19 years of age who use 1.8 and 144 MHz with 10 watts output.

The prefixes denote the following: OK1 Bohemia, OK2 Moravia, OK3 Slovakia, OK4 is used for maritime operation (/M for rivers and /MM for the open sea), OK5, 6 and 7 are special stations, OK8 are guest licensees, OK9 denotes an experimental station and OK0 is used by beacons and special stations.

AUSTRALIA POST

Much criticism is often needlesly attributed to the shortcomings of our postal system. I have had two problems in ten years with missing mail and have the highest praise for the staff of my local Post Office, where I get excellent service.

An approach was made to Mr Jim Foley, Public Relations Manager for Australia Post, as to the best methods of dealing with certain problems that are pertinent to our hobby. Jim in his amiable and meticulous fashion has written the following pointers for the readers of this column.

POSTAL POINTERS

Amateur radio operators have a fair amount of overseas correspondence so some overseas posting advice could be of help.

Australia Post has a range of overseas mail services designed to meet the requirements of most customers.

The most widely used is the Air Mail Service for envelopes bearing the familiar blue sticker.

Charges vary according to size and destination.

Postcards are cheaper and the popular aerogrammes are a standard rate no matter what their destination.

The fastest international mail service, indeed the fastest mail in the world, is INTELPOST.

INTELPOST is a document facsimile system that enables typed or handwritten documents, drawings, sketches and, yes, even radio circuit plans, to be transmitted to a wide range of countries in minutes.

Material can be collected and delivered by Australia Post Express Courier at this end and, where possible, arrangements can be made for delivery at the other.

On the heels of INTELPOST comes International Priority Paid, a premium service for very urgent items to a number of countries. IPP delivers articles as fast as possible.

The charges for this service will be refunded if the article is not delivered by the scheduled time.

Overseas Express Delivery is designed to expede delivery of postal articles from the delivery post office to the addressee.

The Surface Air Lifted service provides an "in between" service for a number of countries. The mail travels by surface within Australia and within the delivery country and by air in between.

If there is no great rush then mail can be sent by surface at a considerable saving on the rates for the faster service.

Australian stamps depict many aspects of our national life and are well regarded overseas. They are often referred to as our nation's calling cards.

Alternatives to stamps are available in the form of post office cash register receipts or postage labels.

Should you wish to send parcels overseas there is a wide range of packing materials available from post offices in the Post Pak range.

They include padded bags, boxes, tubes and packing and sealing materials.

International Reply Coupons are a popular service and are exchanged in the country of destination for a stamp to prepay surface mail postage on a return letter.

Your local post office will be pleased to provide further information on any of the above services.

From time to time articles of overseas mail can go astray.

Although very few articles disappear altogether, delays can occur in all postal systems.

Unexpected high volumes of mail can lead to temporary backlogs and human error can result in a few articles being missorted.

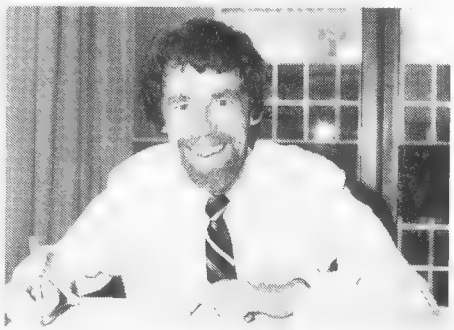
However, Australia Post's "on time" delivery rate is generally in the 90 percents.

Delays outside the postal system can include industrial action in other areas and poor addressing by senders.

Dead Letter Offices the world over contain mute evidence of partly addressed letters or articles not addressed at all.

Yet every sender, if asked, would swear the envelopes had been correctly addressed.

Anyone concerned about the non-arrival of an article can make enquiries at Post Offices as Australia Post has procedures to help in these cases.



Mr Jim Foley

Thank you Jim, for setting out the above hints and where to get help if you need it. It is much appreciated.

What Jim didn't mention was that Australia Post in 1984 employed a staff approaching thirty three thou-

sand full time employees and had in excess of six million delivery points from 4843 Post Offices, handling the staggering amount of 3,035,060 million articles in the financial year 1983/1984 of which 164,362 million articles were received from abroad.

Quite staggering figures which cause me to forget about my two lost letters in ten years!

CARDS GOOD!!!

As predicted the A61AA cards are good for the ARRL DXCC and also the operation F0ICR/FO8 pasteboard is being accepted. New countries for a lot of operators.

CARDS ARRIVING

According to all reports the CE0AA cards are drifting through and most should have their new country confirmed by now. Those who have not received a reply by this month should apply again, firstly checking the log as to the correct date UTC time group of the contact and marking the card that it is the second attempt!!

A STRANGE CLAIM

Unal, TA1A, claims to be the first officially authorised Turkish amateur with Licence No 0001. No QSL information as yet but the authorities are evidently allowing for a lot of licensees by starting with a four figure number!!! Let us all hope that genuine operations will tend to increase the amateur population in that country as they have suffered problems for a long time now.

ANTARCTICA

The US Bases in Antarctica are quite active on 14 MHz SSB. KC4USX and KC4USV on McMurdo and KC4USB at Byrd.

TRINDADE

Luiz is PY1CR but was allocated PY0TE whilst on assignment with the Navy as a physician and sub-commanding officer of troops on the island. Luiz went QRT in early February and his QSL Manager is PT7WA, Rua Ageu Romero 83, Fortaleza, CE 60000, Brazil.

WARC BANDS

YI1BGD and Y2 stations are now permitted to operate on these bands. The East German stations are allowed 500 watts on both CW and SSB.

XU1SS

A letter from the very attractive 26 year old Keo Kimsan who operated both CW and SSB from this station has advised that the Ampil Village is now occupied by the enemy. All the amateur equipment was left behind in their hurry to escape.

I am sure Kimsan, due to her love of the hobby, will reappear from another QTH later this year.

Keo Kimsan, well known SSB and CW operator of XU1SS.

BIG SIGNAL FROM PA6FLD

The weekend of the 16th and 17th of February saw normal transmitters coupled to 20dB high gain arrays which will be used as from the 1st of this month by Radio Nederland Wereldomroep at their new transmitter site.

The antennas are claimed to be some of the largest directional arrays in the world and judging by the signal on 14 MHz I can believe it. It stayed on S9+ at this QTH for hours.

A special commemorative QSL card is available for contacts and SWLs on a heard basis.

FIJI HONEYMOON

Isao JH1RNZ, a medico, is expecting to do a lot of DXing during his honeymoon in Fiji between the 15th and 23rd of this month.

DXpeditions are not new to Isao as he has held the calls of KC6RN and T30RN, hoping to make the trio with 3D2RN. He is taking an FT757 and a FL2100B linear and hopes to operate on 160 through to 10 metres on CW and SSB. Spot frequencies to look for Isao are 1.803, 1.832, 3.507, 7.003, 10.111, 14.025, 14.195, 21.125, 21.295, 28.025 and 28.495 MHz.

QSP's for scheds may be made through Toshi JA1ELY, JH7DNO, JH6SOR and KD7P/KH2 on 14.195 and 7.085 MHz during the expedition. All QSLs to JH1RNZ.

ZC4 CONFUSION

Have I worked it? Is the problem in most peoples mind I am sure and if not, *when will I be able to?*

According to Bob Winn Editor of QRZ DX there appears to be a lot of confusion which stems from the misconception that all ZC4 stations operating after the 16th August 1960, the date of independence, were located within the Sovereign Base Areas. The ARRL News Release that announced separate country status for ZC4 stated "All ZC4 contacts made after the 1960 date were not necessarily operating from within the Sovereign Base Areas".

Bob has published a list, adapted from the DX News Sheet of some of the stations known to be active during this period and the calls noted with an asterisk (*) should be acceptable. Please bear in mind that this is not a complete list nor is it infallible but it is intended as a guide to what could be "good".

ZC4AK* 1967 Akrotiri, ZC4ASG* 1982 Akrotira, ZC4AVU* 1971 Akrotira, ZC4BP* 1969, ZC4CB* 1970 Akrotire, ZC4CI 1966 Famagusta, ZC4CN Famagusta, ZC4DA* 1968 Dhekelia, ZC4EPI* 1980 Episcopi, ZC4GB* 1966 Akrotiri, ZC4IK* 1970 Akrotiri, ZC4JU* 1965 Akrotiri, ZC4MO 1965 Mount Olympus, ZC4PC* 1966 Dhekelia, ZC4RAF* 1970 Akrotiri, ZC4RB 1967 Akrotiri, ZC4RS 1970 Limasol, ZC4SS 1965 No QTH, ZC4TK* 1968 Akrotiri, ZC4TX* 1965 Episcopi.

Well, it is now a hunt in most shacks to sit down and find one that may be good, if in doubt send a selection but not before the 1st June. If all fails and the silverfish have beaten you to the pasteboard, then possibly the best bet is to listen for Martin ZC4MR who is definitely in the new DXCC Country. Good luck and wish me the same.

BITS AND PIECES

DJ4IJ/XZ still operating but not recognised by the ARRL DXCC Desk. **VK75A is a special 75th WIA Anniversary Call that will be heard from all states for selective occasions. **On a four year round the world voyage is the "Sir Walter Raleigh" using the call GB0SWR/MM. **The new Norfolk Island signal is from Les VK9NI. **Two ZC4 stations quite QRV. ZC4MR around 14.213 MHz and ZC4ESB is QRV from Dhekelia **John VU7GV was supposedly active from the Laccadives. QSL via HB9MVW. **The CG3 prefix, in mid February was to commemorate the anniversary of the Girl Guide Movement in Canada. **DP0GVN at George Neumayer Base or (70° 36' 15"S, 8° 17' 14"W) will be active until March 1986 on all bands and CW/SSB/AMTOR/OSCAR 10. QSLs via DJ4SO. **The Yaesu Bangladesh team did not work any DX stations during their tests for the government. **Well known DX Editor of NZARTS Break In, Ron ZL1AMM, has not enjoyed the best of health of late. Best wishes from all for a speedy recovery Ron. **JW5E was a group of YL's who entered the CQWWDX Contest. **Still hope for 4U1VIC as a new DX Country. **C73AA if you worked it was a "phony". This call is allocated to the World Meteorological Organisation. **S9 may be have a genuine expedition in early 1986. **Due to business commitments, the "Globe Trotting Colvins'" have deferred their trip to Africa indefinitely. **Activity from Thailand should recommence on a more permanent basis in the near future. **Speedy recovery to Lee KH6BZF after his sojourn in hospital.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, KARL NEWS, OZ, 73, BREAK IN, WORLD RADIO and VERON

Members who have contributed include VKs 2JM, PS, DTH, 3FR, YJ, YL, 4BHJ, 6NE, G3NBC, WA3HUP and L30042. Overseas amateurs include G1EOD, I8SAT, ON7WW AND ZLIAMM. Sincere thanks to one and all. Good DXing and I am going looking for my ZC4 cards

QSL INFORMATION

1Z9A+1Z9D+1Z9YL:W7PHO, 3A2EE, 3A4E, 3A4F:F9RM, 3C0A:I8ACR, 3X4EX:N4CID, 4K1A:UY5DJ, 4S7VK:DJ9ZB, 4U39UN:W2MZV, 4V2C:NQ4I, 5H3BH.SM0EAI, 5N0ATT: K4PVZ, 5N3RTF:DK2IF, 5N24AMA:5N8AMA, 5R8AL: WA4VDE, 5T5RD:F6IJA, 5T5RY:F6FNU, 5W1EX:W6ZH, 5X5GK:JA1BK, 6W1NQ:DL1HH, 6Y3M:KT3M, 6Y5RL: WA4WTG, 8P6AH·WA4WTG, 8P6GG:N4CTC, 8P6MI·VE3JTQ, 8P6MZ WA2OGR, 8P6NW·KA9EBM, 9G1CI·LA4O, 9H1EL: LA2TO, 9H3DN:LA2TO, 9J2BO.W6ORD, 9J2TJ:N8JW, 9M2AV:W4SKE, 9M2HB:N4FFN, 9Q5/W9JER:WB0MZB, 9Y4NP:W3HNK, A4XJW·N4WVF, A22BW:OK3KD, A22DP: W7GVZ, A22TE:AK1E, A35SA:JM1MGP, A22WZ.OE3NH, A24DM:AK1E, BV0AB·JH6SOR, BV0W W4WJ, C30ZA: WP2ABZ, CG3SAS:VE3FOI, CO2KK:KE5KK, CT2CB:N2DUR, CT4NH:W3HNK, EA8/OH2BEJ:OH2BEJ, EL2EF KM8E, EM5T:UT5UWV, ET3PS DJ9ZB, FT8XA:F6FYD, G8NV/MM: RSGB, HL9XX.AF3R, J37AH·W2GHK, J73D:W2OB, J88AQ. W2MIG, OD5NT:WA3HUP, OX3CX:SM6HCX, OX3KP: OZ1HDF, RI8CA:RA3AR, SV0AC/SV9:WB5GCP, TI2WI:TI2J, UR1RWW W7PHO, V85MS:N2OO, VK0GC:P29JS, VK0GL: VK3YTU, VK0PB VK6NE, VK0YL·VK3AH, VQ9AC:KA3EDN, VQ9SK:WB6SKS, W7TSM/HK1.W7, Buro, ZK1XV:PA2DXY, ZK1XS PA2DXY, ZL7OY.VK3DWJ, ZS3GB·N0AFW.

ADDRESSES

FO8HO	PO Box 5684, Papeete, Tahiti.
FT6FYD	PO Box 8, F-78570, Andresy, France.
H44IA	PO Box 219, Honiara, Solomon Islands
HC1A	PO Box 280, Quito, Ecuador
JT1BG	PO Box 158, Ulan Bator 13, Mongolia
JT1BQ	PO Box 27, Naraikh, Mongolia.
ST2SA	PO Box 1533, Khartoum, Sudan.
TU2AX	PO Box 3349, Abidjan 01, Ivory Coast.
V85HG	PO Box 222, BSB, Brunei
WB0MZB	PO Box 386, Onieda, South Dakota, 57564, USA.
XT2BO	PO Box 182 Ougadougou, Rep of Burkina Faso.
XT2BR	PO Box 116, Ougadougou, Rep of Burkino Faso.
YC3FU	PO Box 274, Surabaya, Indonesia.

CW SWLing with ERIC L30042

28 MHz
VK3PIW, Beacons VK4RTL, VK5WI.
21 MHz
JO1QGK, JP1FEE, JR3MTO, JR6UJO, VK2CTN, VK5XJ, ZL2AQU.
14 MHz
AH2G, EA3JJ, FE8AH, FK8CR, FK8FF, FE6GJM, FO8HO, FO8JR, G4FOC, HL2AKB, HL4XM, I4TSB/4, I8LPR, H44IA, LZ1KWF, OH2BVM, P29BR, SM2BJE, UA9OEL, UA0ABC, UJ8BQ/R, VU2VIT, YB0ZDB, ZL0AIW, ZS6KC.
10 MHz
DJ2AAC, FE2IL, FE8VN, JJ2AEV, SM6QG/MM, VM4AAA, VK6AKG, VK7RY, W1NHJ, W2KTF, K3DOT, K1TPZ/4, W8AVB, W0EFR, YU2TW, ZL1BIQ, ZL3AAM, ZL4NH
7 MHz
BY4AA, DJ5CY, FA7AQL, F2EM, G3FXB, G4VRX, G8NV/MM, W7TSM/HK1, I1LF, IT9GVF, KH6CF, K0AX/KH2, KL7U, LX1PD, LZ1KAU, OE3ZOC, P29PR, ZK7AX, SP2GE/MM, SP7ASZ, UA6HPG, UB5ZZ, UF6FFZ, UZ9CWA, YB3AS, YB7HB, YB0BRT, YC3FU, YC0EZF, YU3IR, YU4JOP
3.5 MHz
BY4AA, ER3A, G8NV/MM, HA9KOB, JA6GIJ, P29PR, UA3AGW, K5UR, W0ZV

QSLs RECEIVED BY ERIC L30042

CM2PE, C31HD, DU1UY, EA6NC, DJ6BN/EA6, EA8AFB, EA8BF, FK8EL, FO8FW, KL7Y, T30CT, UH8EAA, CY3KUC, 5Z4MX, and 10 MHz EA4BWR, FE2IL, G4OTU, JA2EPW, W4OWJ, 4X4WF

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq.	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland
50.050	GB3NHQ	England
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mount Climie
52.020	FK8??	Noumea
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth (1)
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

(1) A report in January 1985 "WA VHF Group Bulletin" says VK6RPH will QSY to 52.460 MHz when it goes back on the air, so the 52.300 MHz frequency is probably wrong. No decision has been made yet regarding the two metre frequency of their beacon.

Also, at the time of writing, it appears VK5RSE in Mount Gambier is not on as I have not heard it and it is always normally available here. We await news.

FIRST PERTH/ADELAIDE CONTACTS ON 432

Wally VK6KZ has sent me details of those contacts which were mentioned somewhat briefly last month and I quote:

"On 10/1/85 Bob VK6KRC in Perth was in contact with Max VK6FN in Manjimup (250km south of Perth) on 144.100 MHz and Max asked 'who broke in?' Bob listened and heard a voice. Thinking it may have been Peter Grumball VK6ZPG (210km north of Perth), Bob swung his beam only to hear unfamiliar voices to the east. He proceeded to work Brian VK5KBU at 2247 UTC on 144 MHz exchanging 5x9 reports. Bob then rang a number of Perth amateurs alerting them to what was going on. Thanks Bob!

"At 2302 Bob made the first ever 432 MHz contact between Perth and Adelaide (2137km from Perth) with Brian VK5KBU with reports 5x9 sent and 5x3 received. Wally Howse VK6KZ was thrilled to work from his home in Perth at 2258 VK5KBU on 144 MHz and then VK5ZRO and VK5ZTS before working VK5ZRO at 2304 and then VK5ZTS on 432 MHz. Mick VK5ZDR and Wally VK6KZ heard each other on 432 MHz but did not make a two-way contact. Other 144 MHz contacts by VK6KZ included VK5ZDR, VK5NY and VK5ZPS. Bob VK6KRC had to go to work (twenty minutes late) at 2320.

"Don Graham VK6HK worked four stations on 432 between 2303 and 2312 viz VK5KBU, VK5ZTS, VK5ZRO and VK5ZDR. Bob Pine VK6ZFY worked Mick VK5ZDR on 144 MHz. I am not sure how successful Jack VK6KDX and Ron VK6FM were. Both were heard calling when VK6KZ left for work at 0015, signals were still there but weaker.

"There was no 6 metre DX in evidence throughout the opening. Peter VK6ZPG at Gunyidi (210km north of Perth) did not hear VK5s nor was he heard by them despite liaison with Bob VK6KRC. Max VK6FN in Manjimup made one contact on 144 MHz to VK5KBU. Max had gone back to bed (!) when Bob had turned his beam east at 0645 local time and hence missed most of the DX.

"Mick VK5ZDR reported no sign of the Busselton 144 MHz beacon VK6RBS (200km south of Perth). Tests on 1296 MHz between VK5ZRO and VK6KZ were unsuccessful.

"It is understood that during the opening to Perth, the path between Albany and Adelaide was also open on 144 and 432 MHz. Some Perth stations including Roy VK6BO and Art VK6ART accessed the Kambalda FM repeater VK6KRB on 146.35/85 and 550km east of Perth working Ray VK6ET in Kambalda and Graham VK6RO in Bunbury 150km south of Perth."

Thanks for writing Wally, but it doesn't make me feel any better to know what was going on but being unable to share in the contacts due to being far enough inland not to be getting any benefit from what was obviously fairly closely associated with the coast over most of its course. *"Them's the breaks so I was told!!"*

PERTH TO ADELAIDE OPENINGS ON 144 MHz

The January 1985 "The West Australian VHF Group Bulletin" also has the following which relates to the above and was also prepared by Wally VK6KZ and should be of interest to readers.

"Further to the WA Interstate VHF/UHF story published in the VHF Group Bulletin from September to December 1980, the following is a summary of the dates and times of openings on 144 MHz between Perth and Adelaide. Times in UTC."

30/12/1951: 0705 to 0712 (1) — two way contact VK6BO/VK5GL
09/02/1952: 0312 to 0323 (1) — two way contact VK6BO/VK5GL/VK5QP
01/01/1967: 0305 — VK6VF heard by VK5ZBR and VK5ZMU
0435 — VK6BO heard by VK5RO
14/02/1969: 2305 — VK5VF heard by VK6ZCB (2)
14/02/1970: 2225 to 0225 — VK5VF heard by VK6ZCB (2)
2315 — VK5VF heard by VK6BO
23/01/1980: 0003 to 0110 — two way contacts by four Perth stations
28/12/1980: 2237 to 2257 (1) — two way contacts by two Perth stations
02/01/1981: 2228 – VK5VF heard by VK6ZKO
03/01/1981: 2107 to 2218 — VK6VF heard by VK5ZPE
10/01/1985: 2247 to 0015 — two way contacts by at least six Perth stations
(1) During six metre openings — Sporadic E related?
(2) Now VK6AB

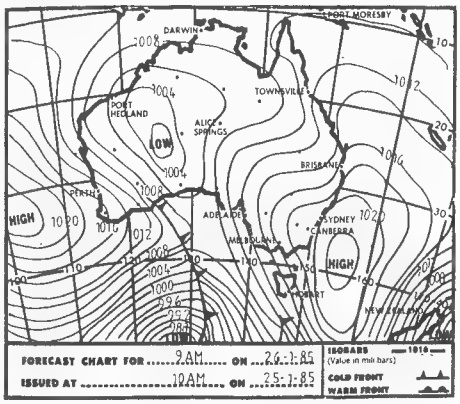
One can soon see from the above chart that contacts such as those which occurred on 10/1/85 are indeed rare, and really very few two-way contacts have actually been made, and even the number of times the beacons at both ends have been heard are equally as rare. In some 34 years there have been only five occasions noted when two-way contacts actually took place. No doubt there have been other times when no one was around but they do not count! All contacts have taken place in a six weeks period from around the end of December to mid February and would appear to coincide with a stable high pressure system across the Great Australian Bight, and would also seem to tie in with the declining Es of the summer season by some means but this is only a suggestion.

NEWS FROM AN OIL RIG!

A very interesting letter has come from Pete Robinson VK3DMX who gives an address as Sale, Victoria, and here are the relevant matters.

"I have been an avid VHF/UHF fan since 1963 holding a variety of call signs throughout the world from that time on, being in the oil business, and having spent the past three years in Bass Strait where there are many opportunities to observe the vagaries of propagation on the commercial VHF/UHF bands as well as the amateur bands. Although I usually bring one rig or other out each shift, I do not do a lot of transmitting, mainly due to TVI — those accursed broadband preamps on the ship's TV antennas being the major problem!

"But I do a lot of listening and am especially alert to VHF/UHF openings. Being on a ship, one naturally keeps a good eye on the weather charts, and I often find a direct correlation between the charts and the VHF/UHF openings. Regions of high pressure seem to be the most notable indicators of openings. Such a 'high' swept across the Great Australian Bight, over Victoria and out into Bass Strait (see weather map). This was accomplished by VHF/UHF DX propagation, especially from Tasmania up into the Bass Strait oil rig area on all bands. It's just a pity there isn't more activity, especially on 70cm. I have had some fabulous contacts both on two metres and 70cm down to VK7 (simplex) with 70cm often holding in long after two metres has dropped out. 5x9 70cm contacts with 100mW to a 'rubber duck' are not uncommon. The CB boys on the Bairnsdale CB repeater have also had some fun working down to Tassie for protracted periods on 476.550 MHz.



WEATHER MAP

"As well as the weather charts I keep a lookout on a small portable TV I have on board. Any sign of Tassie TV and I'm out having a scan around the amateur bands, invariably triggering some repeaters even if there are no replies.

"Occasionally, especially around October and November, the 'ducting' becomes so intense as to be seen visually across the ocean. Similar to a mirage effect I guess, noticeable by a strong line visible just above the horizon. Oil rigs sometimes 80km away can be seen clearly, and seem to hover above the water. Turn around, and sometimes you can't see rigs only 15km away. It's really weird! One notable day last December I could see inverted freighters way off the coast, well over the horizon, seemingly hanging upside down in mid-air, about two to three degrees above the horizon to the east. Noticeable too was the strong line mentioned before.

"On these occasions the ships' radar is often showing funny things, as one would expect. 156.800 MHz (Maritime Marine Ch 16) often shows a lot of traffic, Melbourne being heard quite regularly.

"I am pretty sure most of the weather related DX is due to ducting, several times I have worked VK7 on simplex, the stations on the coast predominating, whereas the repeaters, being up on mountain tops could be heard only weakly or not at all.

"I would love to see a multiband beacon out here on one of the platforms, 2m, 70cm and 1296 MHz. I am not here often enough, and when I am, I'm often too preoccupied with work to provide a regular signal from this region. However, I am sure a beacon would provide many surprises, especially if monitored from various locations with computer-aided scanners with print-outs . . . oh! if I only had the time available!

"Rigs I use are an FT290R, FT790R and an AR2001 scanner covering 25 to 550 MHz. Antennas by necessity are usually just vertical whips, tacked on

when nobody's looking!" Thanks for writing Pete.

Readers at least now know there is someone often listening off our southern coast but the lack of transmitting power coupled with a limited antenna system will make it difficult even under relatively good conditions to make contact with stations any considerable distance away plus the fact that much of the more sustained DX is done on SSB and horizontal polarisation of the antennas. But now you are known to be there, Pete, a few more contacts could eventuate.

ISLAND HOPPING

Lionel VK3NM has just returned from a six weeks tour of New Zealand, Norfolk Island and Lord Howe Island. He took an IC505 and a 2 element quad made out of PVC conduit with PVC fittings as this was easier to handle on the six air flights he made. The following is a summary of contacts.

From New Zealand: 25/12/84 VK2XJ; 26/12: VK2BQY; 28/12: ZL7OY, VK2DDG, VK2XJ; 29/12: VK2BHO, VK2GS (52.525 FM), VK5DK, VK3AZY, VK3YDE, VK3ZYN, VK3YY. Heard VK3AKK, VK3ZBJ, VK6OX and VK8ZLX. All the above contacts were from Devonport, Auckland. 3/1/85: VK2XEA, VK2XJ; 9/1: FK8EM, VK4JXZ; 10/1: VK2DDG, VK2KAA; 12/1: FK8EM (52.525 FM); 13/1: VK2XJ; 18/1: VK2DDG.

From Norfolk Island: 20/1: ZL1ADP, ZL2TJX, VK2XJ, VK2BA, VK2KYL; 24/1: VK2BA, VK2AYF, VK2BNN, VK2LM, VK2XEA, VK2XJ, VK2ADV.

From Lord Howe Island: 30/1: ZL2CD, ZL3AFN, also heard a ZL1 plus ZL1UHF beacon plus ZL TV.

Lionel commented he heard VK TV on many days with very strong signals whilst in New Zealand and on Norfolk Island, but only short bursts from Lord Howe Island. He hopes to go back to ZL next year around Christmas with 6 and 2 metre SSB and better beams with the idea of trying to work trans-Tasman DX particularly on 2 metres. This year Lionel also carried some HF gear but due to his low aerial could not work much DX, in fact, finding 6 metre DX a lot easier than 20 metres! Thankyou for the letter Lionel, hope you enjoyed yourself.

1296 MHz . . . AT LONG LAST!

After eight months or more of talking about it, Dick VK5ARZ, President of the WIA (SA Division), finally got around to making his 1296 MHz two by 27 element loop Yagis rotatable and replaced the RG8 feedline with a piece of heliax with the result that for once he could be heard further than his letter box!

Contacts were managed with Bob VK5ZRO, Brian VK5KBU at 5x9, then to Don VK5ZRG at Whyalla for a 5x9+ report from 1 watt! Then to just round things off there developed what was probably the first three way 1296 MHz round-table between VK5ARZ, VK5ZRO and VK5KBU. Dick's location gives indications of being perhaps even better than that of Bob VK5ZRO as Don VK5ZRG seems to be hearing Dick a little better than Bob at times. Interesting, especially as Bob is running 10 watts to a 1.2 metres dish compared with Dick's 1 watt and two 27 element Yagis.

144 and 432 MHz STILL GOOD

One might have been excused for thinking that perhaps 144 and 432 MHz would go quiet after all the happenings of 10/1 and 11/1 but this was not so. The following is a brief summary of what Mick VK5ZDR worked this month.

12/1: VK3BHS 144 & 432; 14/1: VK3AOS both bands; 15/1: VK3KJB and VK3ZBJ on 144; 19/1: VK3BHS 144 & 432; 21/1: VK3BEH 5x9 on 144 with 2¼ watts, VK3AMH on 144; 22/1: VK3BRB (Mildura) and VK3ZBJ both 144; 23/1: VK3BRB 5x9 144; 24/1: VK3BRB 144; 27/1: VK3AMH, VK3XBB on 144; 28/1: VK3KVW, VK3KJV, VK3BEH, VK3BRB, VK3AUG, VK3AUU, VK3ZQB, VK2BY (Broken Hill), VK2YEZ (Griffith), VK2ZMP (Wagga), VK3ZHP, VK3ZHG and VK3KVW all on 144. Then on 432 he worked VK3ZQB, VK5ATD, VK2YEZ, VK3ZHP, VK3ZBJ. Quite a day! VK5RO worked VK2ZTH in Gosford as well.

1/2: VK3ZBJ on 144; 6/2: VK3ZBJ 144 and 432; 16/2: VK3ZBJ on 144 and 432, VK3ZHP, VK3ZEM, VK3AZY and VK3ACL on 144; 17/2: VK3NM, VK3KEG, VK3AUU all on 144, VK3ZBJ 144 and 432. After that the bands went quiet!

On 28/1 (UTC) but actually 29/1 the band on 144 must have been in fairly good shape as even VK5LP was able to share in some contacts. At 2251 on 28/1 VK2BY in Broken Hill 5x6, 2305 VK3APF Wangaratta 5x5, 2311 VK2YEZ Griffith 5x5, 0031 (29/1) VK3AUU 5x3 and 0043 VK3ZBJ 5x5.

It was even noted that Bob VK5ZRO who bitterly complains about my hill (in reverse) blocking his signals to the east, shared in some contacts. On 24/1 he worked VK3BRB in Mildura at 2210 on 144. On 28/1 at 2233 he worked VK2BY on 144, then at 2258 VK2YEZ on 144 and 432!

SIX METRES QUIET

There have been the occasional Es openings during the month on 12/1 VK4ZAL 0121; 16/1: VK8ZLX at 0315; 18/1: VK2; 23/1: 0131 VK2XJ, VK4FNQ; 25/1: VK9ZR Willis Island worked by VK5ZRO and VK5ZDR at least around 0218, then at 1030 VK2KFB, VK2YHN; 26/1: VK4YJH at 0136; 8/2: 0402 VK8ZCU; 9/2: VK6KZ at 0240.

THE HIGHER BANDS

A bit of news picked up on 144 MHz from Les VK3ZBJ when I was fortunate enough to work him recently was that he and Garry VK3ZHP had had a contact on 2.3GHz on 12/1 at 1021 signals 5x2 and 5x9, FM both ways but SSB soon. Also worked was Lionel VK7HL who was running 1 watt to a 1.8 metres dish, VK3ZHP 12 to 14 watts to 3.6 metres dish, Les VK3ZBJ about 15 watts output. Congratulations!

TECHNICAL ITEMS

A couple of items from the November 1984 "The Short Wave Magazine" courtesy VK5AIM.

"John Hunter G3IMV, uses a 21 element Tonna Yagi and mentions the considerable detuning caused by rain. In dry periods, his antenna resonates at 431-432 MHz with a VSWR of 1.2:1. However, after heavy rain, the VSWR went up to 5.9:1 with minimum VSWR at 438 MHz. He took measurements over some hours after the rain had stopped and the VSWR and resonant frequency gradually dropped. Have other readers noted such dramatic changes with Yagis?"

One would tend to query whether in reality the VSWR is as good as suggested, and whether it is being read at the end of the cable run rather than at the antenna? If there are standing waves on the line then there could be drastic changes if the line was in contact with other materials for any appreciable length, especially when wet. I recall some years ago a customer who lost almost all their TV signal when it rained. The coaxial cable was relatively new and no rain was able to enter at the antenna, but the cable lay along the top of the roofing iron for about 10 metres. Lifting the wet cable off the roof immediately restored most of the signal. As in most TV installations the VSWR was relatively high as most such installations are a compromise anyway. Re-routing the cable under the roof cured the problem, and I think something similar would help G3IMV. More importantly though, it would tend to illustrate the proven statement that you check for best SWR at the antenna, then note the reading at the bottom and any variations should then be apparent with the passage of time, rain etc.

The other item from "The Shortwave Magazine" is that G4CQM suggests plumber's PTFE thread tape, wrapped around coaxial cable to the appropriate thickness, is a successful way to replace damaged rubber rings in "N" type plugs to restore their waterproof properties. And that sounds like a very good tip.

Incidentally, while on the subject of coaxial cables, did you know the original patent was taken out on 27/3/1884 by Werner Siemens. The first known use of coaxial cable was for the 1936 Olympic Games in Berlin when it was used for a link between Berlin and Leipzig to carry 200 telephone channels. This item from "Break In" December 1984. So 1984 was the "Coaxial Centenary".

CLOSURE

That's it for this time. As everyone knows, there is always a lot of individual VHF activity occurring throughout our continent which is unreported because I don't know about it. If you do something a bit special why not drop me a line and tell me about it so I can pass the news on to others. I have my more or less regular correspondents but my desk is always able to accept more and the wider coverage I can give the wider the interest.

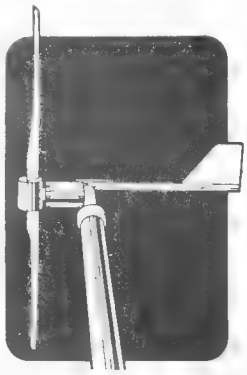
Closing with the thought for the month: "How strange it is that you can't get 20 people to attend an early evening meeting to improve the community, while half the town will turn out at 3.30 in the morning *to watch a goodly portion of it burn to the ground!"* 73. The Voice in the Hills.

AR

OH DEAR!!!

In the March magazine the figures missing from the pi graphs were Convention 5%.

RIKAN HORNET WINDTURBINE



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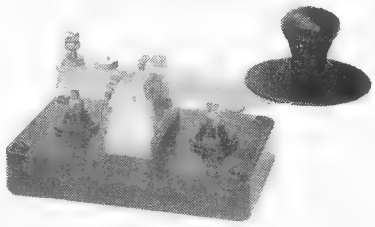

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CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

APRIL

6-7 GARTG SSTV Contest
20-21 ARCI QRP SSB Contest
20-21 VIGO World Fishing Contest

MAY

4-5 County Hunters SSB Contest
18-19 ARI International Contest
25-26 CQ WW WPX CW Contest (Rules this issue)

The Contest Calendar certainly seems to be rather sparse as shown above. I have not received any confirmation of contests as forecast in last months issue therefore I have not included the Polish Contests or DX YL to North America Contests.

Provided the Federal Council vote to allow the Federal Contest Manager to continue the right to fix the dates of contests in a Postal Motion currently being circulated I would like to indicate the likelihood that I will try to improve the contest scene by placing the VK Novice Contest for this year on the weekend of 29th and 30th of June. This will allow a reasonable spacing between the Novice and Remembrance Day Contests and should also provide more suitable conditions for operation on the 80 metre band which is obviously the prime band for novice operation.

I recently received a letter from 'Jock' White ZL2GX who is the Contest and Awards Manager for NZART. I would like to quote a few excerpts from his letter. Jock writes, *'Delighted to hear from you . . . and, I'm taking time out from log checking to write . . . just as well too as my "fuse" gets a little short when log checking . . . it's a soul destroying task as you know, for sure!! It's a strange thing . . . "some" fellows complain that rules are changed from time to time in the VK/ZL/O . . . BUT . . . it's obvious that MANY do not read the rules at all . . . or, if they do, this is done in a very perfunctory fashion. No real harm done I guess, but it becomes obvious when things are omitted or even ADDED.*

'Yes . . . I've been associated with contests for quite a long time . . . with the VK/ZL for some 40 years and I was involved with contests before the war . . . maybe too long!! BUT I try to be innovative and for this sometimes run into real "flak" . . . you can't win. Of course this is natural . . . we ALL know best . . . HI. Like in teaching . . . I spent over 40 years in the education service . . . some 30 plus in senior positions and ALWAYS . . . everyone else knew more about everything than the principal himself . . . GREAT stuff.'

So, there for a start we hear from Jock words which may not seem to be unfamiliar the world over. It certainly appears that things are not much different just over the Tasman Sea to what they are here. And this applies, as Jock points out, not only to the hobby of amateur radio either. The callsign ZL2GX has been a most familiar one on the bands for a long time Some of you may be interested in a few more details about 'Jock' White. He has been an Honorary Life Member of NZART for over 20 years, been a Vice-President, a Councillor etc, etc, . . . WAS (years ago) a keen contester . . . was world first DXCC 300 in 1960, in RAF during war with night fighters . . . an avid collector of NZ coins and stamps and Maori artefacts . . . has a large electronics museum with emphasis on amateur radio . . . has specialised in the famous "HRO" genus and has over 20, mostly from the USA but also versions from NZ, Australia, Japan, Germany and has been trying for years to get one from East Germany, made after the war.

Unfortunately I have never had the priviledge of meeting Jock in person or seeing what must be a remarkable collection of equipment owned by him. I have however spoken to him from many locations both from within VK and from overseas, and have also been the recipient of quite a number of very nice awards and certificates taken care of by him.

In another portion of his letter Jock also says *'I've had so much from amateur radio that if I lived to be 100, I'd never be able to repay all I owe.'* There is certainly no doubt in my mind that Jock is one of those small band of stalwarts who have tried to give back to the hobby some of what they have received from it Perhaps you might like to consider the various aspects of this subject and recall such things to mind next time you are asked to stand for office within the organisation of the WIA, when your next Club elections come along or some volunteers are called for in connection with other aspects of our hobby. I too feel that I owe some kind of debt due to all the fun I have had in my 26 years on the air, otherwise I would probably not be doing the job of FCM. I would repeat a well known but very true phrase to the effect *'that you always get out of anything no more than you put into it.'*

I would like to thank Jock for his most interesting and friendly letter in which he answered quite a few questions for me, and I hope that the information and comments from such a very experienced and well known Old Timer will have been of interest to you. By the way, he did indicate that the results for the 1984 VK/ZL Contest should probably be available some time in April.

Now that all the action concerning the 1984 Remembrance Day Contest is over I would like to include in my column some material which I wrote in June 1984. As a result of the time which has passed since the material was compiled some of it might seem to be dated, nevertheless I feel that the material contained therein should be aired, if only to provide the basis for further discussion of contest matters. You will note that some ideas expounded have already been acted upon.

Several years ago it used to be quite common during the Remembrance Day Contest to hear stations giving their call sign as VK5XYZ log VK5XYX. This meant that the operator was using the station of VK5XYZ but that he held the call sign VK5XYX and the latter call was the one which should be logged for the purposes of the contact and serial exchange. The reason for this procedure was twofold. It provided an answer to the problem of regulations governing operation from another station and it was a way of encouraging those who were not particularly active and did not have a station of their own, to join in the contest with co-operation from a friend. This approach also allowed operation from one station by several operators when carried out at a club station. During my time spent at Woomera working at the Space Tracking Station and at the Missile Range, individual operation of an amateur radio station was not permitted for security reasons. So for each Remembrance Day Contest there was almost a queue of operators wanting to air their call sign, if only to make the minimum of five qualifying contacts. At the same time there was usually some particularly keen operator who had the enthusiasm and could spare the time to try and make as big a score as possible for the Club Station and who also wished to make as respectable a score as he could using own call sign.

In our amateur community today there are quite a number of club stations and as well there are operators who, for one reason or another hold more than one call sign. It was with this knowledge, as well as my past experience in mind, that I very strongly queried the addition to the rules of the Remembrance Day Contest which stated that an operator could only operate using one call sign during any single period of the contest, and that operation using two call signs more or less simultaneously was considered to be against the spirit of the contest.

I now take the opportunity through this column of expressing my own personal view, both as the current FCM and as an experienced contest operator. I do this to stimulate discussion on contest matters of this kind. I wish to hear your views on such subjects, but I would not presume to alter what I consider to be important aspects of the contest rules without there at least being some opportunity offered for 'public' discussion of the matter. Let me quote from some previous correspondence on this subject, just to present some points of view.

". . . no one managed to explain just how, by operating with two call signs on a more or less simultaneous basis one is not operating within or accordance with the rules and spirit of the contest. Why is it a matter of 'wanting your cake and eating it too.'??? This is just so much ballyhoo. Who also said that this applies only to club call signs?"

"If I have the authority and right to operate under two different call signs I maintain that as long as I am operating according to the regulations I should have the right to air both call signs in the contests in any manner and at any time I wish. Some people have two call signs. How does the use of both these call signs constitute a situation which is against the spirit of the contest?"

"Let us please face some facts. A contest is just that, A Contest, and where rules are printed they should be adhered to, however let us also realise that people in general will adhere to rules which are reasonable and of benefit to either, all or the majority. Let us look at this in practice. Say I use one call sign for four hours and another for four hours. If I am a good contest operator I will be working at a rate of one contact per minute. With the first call sign I have made 240 contacts and with the second also 240 contacts. This means that I have given out a total of 480 contacts to other people. Assume that I work at the same rate using both call signs for a period of eight hours. How many contacts will I have made for myself and how many will I have provided to others? If I am a really good operator it will not be quite like this as by using the two calls to the best advantage I will probably be able to increase the overall total somewhat, however to whose advantage? I will most likely have a higher score for one of the two call signs by using that particular call sign more often in a 'run' of contacts whilst the other call sign is used as a 'fill in' where the going becomes a little slow or where another operator who is a wake up has requested that I provide him with an extra contact, to his advantage, where he knows that I can do so. So for goodness sake, where is this against the spirit of the contest? This I can assure you is exactly just what does happen in practice and in fact I believe that it actually adds to the fun and the spirit of the contest. If I am an operator who has the ability to do just what I have described why should I be deprived of the opportunity to use my skill? What is more, let us also look at the fact that one of the often much vaunted reasons for us having contests is that it allows our operators to practice and advance their skills with the end result in view that it will be to long term benefit for such occasions as emergency operations etc."

A note was added to the above that *"In many cases though the use of two logs may also slow up the contact rate."* This statement applies in the case of unskilled operators making their first attempt at such an operation and I do believe that they should also be allowed to make their attempts in this way.

My firm belief is that our contest rules should always be such as to encourage entrants to be as versatile as possible whilst still operating within the regulations applicable to the amateur service and in accordance with the contest rules laid down. In line with this belief it follows that contest rules should be kept as simple as possible and that where additions and deletions to rules occur they should not be instituted without very serious consideration as to their effects on those most concerned, namely the operators themselves.

Thus I have adopted this policy of opening up to you through my own thoughts the opportunity for

comment and discussion on any aspect of the running and organising of our contests here in Australia. Do not be afraid to make your opinions known, they are in fact really welcomed. Let me specify where, apart from the particular subject dealt in detail above, your comment and advice can assist in improving the contest scene here.

Are our contests held at the right time of the year? Should we, for example, make a major change with our Field Day date and have it in June so as to co-incide with the ARRL Field Day Contest? That way the potential would exist for many more portable/portable overseas contacts than occur with the ZL Field Day co-inciding with ours. Would the cold weather be worse than the extreme heat of summer with the Field Day in February?

Shoud we consider changes to the scoring system used for the Remembrance Day Contest? Should we apply a scoring table for all Australian contests designed to take account of differences in propagation and population spread etc?

Should we include added incentives for use of natural power in field day contests and have a section for home stations on emergency power? Should VHF operation in each contest, including the Remembrance Day Contest, become a completely separate portion? Should check sheets have to be sent in by every station operating in each contests?

How about an entirely different approach? For some contests no log entries are required at all. Instead entrants merely send in a summary sheet showing their claimed scores etc, together with check sheets which allow the Contest Committee to compare them and observe any major anomalies which might have occurred. If necessary, logs from various stations may then be called for. What is your opinion on this? Should there be consideration to having a winner from each State for each contest so as to overcome problems of population density? Should we have any contests at all?

So keep those cards and letters coming along with your ideas. That way we might be able to come up with ideas which will please most of you. I will certainly see that your ideas are not ignored and will most definitely publicise those most worthwhile of comment. Meantime best of luck with all your operations be they contesting, DXing, ragchewing or whatever. I hold strongly to the opinion that there is a place within our hobby for all the many varied activities it allows.

SUBMISSION OF LOGS FOR CONTESTS

I have received letters from two entrants who sent off logs for the Remembrance Day Contest. These are Ken VK3AH who is well known for his DX Column in this magazine as well as for his work in other ways connected with the magazine and the other from Jo VK2KAA. In each case these people were most disappointed that their callsigns did not appear in the results for the contest. The reason for this is that neither of their logs were received at this QTH. Why this should be so I just do not know and as I have explained in a personal letter to each of them, there is little I can do about it.

Most logs seem to make it OK, however I suppose that the law of averages says that some will go astray. Maybe from this we can learn a lesson. In the past I have always sent my logs to the Contest Manager by Certified Mail. (Registered Mail would be better, however it is rather expensive.) In this way there is at least some check and evidence that the log was posted at a certain place and time. So I would suggest that if you are very concerned you might follow this approach.

It is interesting to note that I have received QSL cards from overseas which were 'Registered'. Another matter to keep in mind is that the package containing the log should be secure and firmly sealed. If there are more than a few log sheets enclosed make sure that the outer wrapping or envelope is strong enough to retain them even when somewhat knocked about, as can happen.

Another matter to watch is to ensure that sufficient postage is placed on the item. Try and use standard sized envelopes and if not sure as to what the mailing charge should be check it with your local Post Office.

I had to refuse delivery of some logs sent in for the Remembrance Day Contest and have them returned to the sender as I was not prepared to pay for the additional postage as well as the extra service charge required by the Postal Authorities.

Should mail go astray you can ask for a check to be made from your end to try and locate same by filling in a form at your Post Office.

It is not only disappointing to the person who has gone to the trouble to operate in a contest and make out a log to send in only to learn that it has gone astray. It is also disappointing to the Contest Manager and it does take some additional time for him to prepare and type out replies to queries as to where the log has gone. Jo VK2KAA sent me a copy of her log which I must commend as being indeed a very neat computer entry. I also know that Ken VK3AH was most upset with his having been lost as I know that he was doing his very best to support his Division in the contest.

Whilst on the subject of letters I would like to acknowledge the fact that I have received correspondence from quite a number of members who are interested in the contest scene and many who have provided me with interesting comments and constructive criticism. It is not practical for me to try and answer all letters personally, therefore I would like you to accept this acknowledgement in general of your contributions. I can assure you that I am not just relegating your letters to the waste paper basket, rather I keep them on file as a useful reference to opinion and comment. I really do welcome your opinions on matters to do with contests, so please keep them coming. At the moment the logs for the Ross Hull Contest are just trickling in slowly, however I have already received some very interesting comment on that contest.

I have received a very interesting letter from Ted VK6ED whom I always meet at least on an annual basis in the Remembrance Day Contest. Ted takes me to task to some degree regarding the practice which could be described as 'claim jumping', referred to in my column in the January issue of the magazine. Ted quite rightly criticises the type of operator who tries to jump in on a frequency which has been CONSTANTLY occupied by another station, perhaps under the guise of having first of all a contact with that station and then attempting to continue to use the frequency for contacts with other stations. I certainly agree whole heartedly with Ted that this constitutes a most impolite operating practice and cannot be condoned. I might however clarify my comments by explaining further just what I was referring to. Again for clarity I must repeat the scenario. *'I have just made a contact with an operator whom I tuned to and called, and then I in turn am called by yet another station on the same frequency'. So, what should I do then?* I can suggest that we QSY. This may be OK, however in the heat of a contest not really a good move. Courtesy should prompt me to ask the original station in a polite manner whether I might use the channel to make the one short contact and this approach may be OK. This latter does however take up as much time as would be used in going ahead and making the quick number exchange desired. Thus the situation becomes a matter of judgement. If good operating, and courtesy prevails it would be possible for me to make that quick contact without any problem, provided each operator recognises the other as being both capable of good operating practice and courtesy. If I have made just such a quick contact under these circumstances I should make it quite clear to all concerned that the frequency rightly is occupied by another station and I should QSY elsewhere. So in this Ted is quite correct and 'claim jumpers' should not be tolerated. There are just a couple of other points to consider. My main complaint is against the operator, namely the first occupant, who does not have the perception (or nouse) to note that I am both a good and courteous operator and who instead either refuses to allow me that additional contact, even though I asked about same, and goes ahead continually calling CQ, causing useless QRM and achieving nothing either for himself or others. I would repeat my previous assertion that *'MOST of the top operators will stand by and allow the other guy to make his quick contact . . .'* To observe this in practice you need only listen to a few of the world's top operators in action to see that this approach can work without any problems at all. However, I would stress again that I agree with Ted that courtesy is the major factor all round.

As to the 'ownership' of a particular frequency and the right to same Ted writes, *'Of course such a right exists — so long as the station first occupying it is continuing to use it. If it didn't operating would be virtually impossible. Breaking in on an obviously occupied frequency must therefore by accompanied by an acknowledgement that it is an occupied frequency, and the stations so using it must vacate it as quickly as possible, with an accompanying word of thanks to the intitial user of the frequency.'*

To all of this I say *'Hear, Hear.'* Nevertheless I have heard arguments from time to time in the middle of a contest to the effect that *'This is my frequency. Get off.'* from another station whom I know for a fact has not uttered a sound on the frequency for anything up to five minutes and indeed whom I have just heard making contacts on 2 metres or another HF band. My thoughts are that when such cases are met as described it is far better not to waste ones time arguing about it, nor by staying on the frequency and either causing or putting up with QRM. You are much better served by going to another channel and keeping the QSO rate up by searching for other stations you need.

CORRECTIONS *(or mistakes made by this Contest Manager.)*

I have on hand a letter from Allan VK4VAT who points out that he did not enter a log in the Remembrance Day Contest even though he was listed as the highest scorer for VK4 in the Phone Section. Allan's log was actually intended as an entry in the Novice Contest and with the score of 665 points places him third in the Phone Section of that contest. I might however point out some slight difficulty with Allan's log, which I have mentioned in a personal letter to him. The front sheet did not have shown on it just which contest the log was for and the only indication that it was intended for the Novice Contest was the date written in rather small figures at the top of the left hand column of the log sheets. This small fact was inadvertently missed. At the same time the log had been received together with the extremely large volume of incoming mail comprising the logs for the Remembrance Day Contest. Maybe this simply adds fuel to the argument that the contests at that time of the year are too close together. Please always indicate on your log the name of the contest.

Included with this months notes are the rules for the well known CQ World Wide WPX Contest. These rules were received here rather belatedly and by the time you read this the SSB Section will have been held. My understanding is that the rules have not been changed from last year, so I hope that you have not had too much difficulty with any SSB operation you wished to enjoy. I will try to enlist the co-operation of my overseas correspondents to ensure that the rules for contests are provided to me sooner so that I can give you plenty of advance warning of such contests.

THE 29TH ANNUAL CQ WORLD WIDE WPX CONTEST

CW: 25-26 May 1985
Starts: 0000 UTC Saturday
Ends: 2400 UTC Sunday

I Contest Period: Only 30 hours of the 48 hour contest period permitted for Single Operator stations. The 18 hours of non-operating time may be taken in up to 5 periods anytime during the contest, and must be clearly indicated on the log. Multi-operator stations may operate the full 48 hours.

II Objective: Object of the contest is for amateurs around the world to contact as many amateurs in other parts of the world as possible during the contest period.

III Bands: The 1.8, 3.5, 7, 14, 21 and 28 MHz bands may be used.

IV Type of Competition: 1 Single Operator (a) All band, (b) Single band 2 Multi-operator, All Band *only*.

(a) Single Transmitter (only one transmitter and one band permitted during the same time period, defined as 10 minutes, no exception), (b) Multi-Transmitter (one signal per band permitted). *NOTE:* All transmitters must be located within a 500 metre diameter or within the property limits of the station licensee's address, whichever is greater. The antennas must be physically connected by wires to the transmitter.

V Exchange: RS(T) report plus a progressive three-digit contact number starting with 001 for the first contact. (Continue to four digits if past 1000.) Multi-transmitter stations use separate numbers for each band.

VI Points: Contacts between stations:
Europe, Asia, Africa, Oceania, S America

A) Contacts outside of own continent count 3 points on 28, 21, 14 MHz, and 6 points on 7, 3.5, 1.8 MHz.

B) Contacts with other countries on own continent count 1 point on 28, 21, 14 MHz, and 2 points on 7, 3.5, 1.8 MHz.

C) Contacts within own country count *0* points but are permitted for prefix multiplier credit.

VII Multiplier: The multiplier is determined by the number of different prefixes worked. A *"PREFIX"* is counted once during the entire contest regardless of how many times the same prefix is worked.

A *"PREFIX"* is considered to be the three letter/number combination which forms the first part of an amateur radio call (N1, W2, WB3, K4, AA6, WD8, 4X4, DL7, G3, IT9, KH2, AL7, NP2, WP4, 9M2, CT9, 4J9, PY7, VK4, JE3, VE3, Y32, Y33, Y45, AN8, AB8, H44, KT4, etc). *A station in a call area different than that indicated by its call sign is required to sign portable.* The portable prefix would be the multiplier. Example: W8IMZ/4 would count for prefix W4 only and W8IMZ/LX would count for prefix LX0 only.

Special event, commemorative, and other unique prefix stations are also encouraged to participate.

VIII Scoring: 1 Single Operator (a) All Band score, total QSO points from all bands multiplied by the number of different Prefixes worked. (b) Single Band score, QSO points on the band multiplied by the number of different Prefixs worked. See VII.

2 Multi-Operated stations. Scoring in both these categories is the same as the All Band scoring for Single Operator.

3 A station may be worked once on each band for QSO point credit. However, prefix credit can be taken only *once* regardless of the number of different bands on which the same station and/or prefix has been worked during the entire contest.

IX QRPp Section: (Single Operator Only). Power must not exceed 5 watts output to qualify for QRPp section competition. *You must denote QRPp on the summary sheet and state the actual maximum power output used for all claimed contacts.* Results will be listed in a separate QRPp section and certificates will be awarded to each top scoring QRPp station in the order indicated in Section X. These certificates will be marked QRPp and will show your power output. QRPp stations will be competing only with other QRPp stations for awards. All other information contained in these rules is applicable to this section.

X Awards: Certificates will be awarded to the highest scoring station in each category listed under Section IV.

1 In every participating country.

2 In each call area of the United States, Canada, Australia, and Asiatic USSR.

All scores will be published. However, to be eligible for an award, a Single Operator station must show a minimum of 12 hours of operation. Multi-operator stations must show a minimum of 24 hours.

A single band log is eligible for a single award *only*. If a log contains more than one band, it will be judged as an all band entry, unless specified otherwise. However, a 12 hour minimum is required on the single band.

In countries or sections where the returns justify, 2nd and 3rd place awards will be made.

XI Trophies, Plaques and Donors: Trophy and Plaque winners may win the same award *only once* within a *TWO* year period. This does not apply to any QRPp, Club, Expedition or *CQ* Special Awards. A station winning a World Trophy will not be considered for a sub-area award. That Trophy will be awarded to the runner-up for that area.

XII Club Competition: A trophy will be awarded each year to the club or group that has the highest aggregate score from logs submitted by members. The club must be a local group and not a national organization. Participation is limited to members operating within a local geographical area *(Exception: DXpeditions especially organized for operation in the contest and manned by members.)* Indicate your club affiliation. To be listed, a minimum of three logs must be received from a club.

XIII Log Instructions: 1 All times must be in UTC. The 18 hour non-operating periods must be clearly shown.

2 Prefix multipliers should be entered only the FIRST TIME they are contacted.

3 Logs must be checked for duplicate contacts and prefix multipliers. Recopied logs must be in their original form, with corrections clearly indicated. Computer logs must be checked for typing accuracy.

4 An alphabetical/numerical check list of claimed PREFIX multipliers must be sent along with your contest log. (A prefix is counted one time only.)

5 Each entry must be accompanied by a Summary Sheet listing all scoring information, the category of competition, and the contestant's name and mailing address in BLOCK LETTERS.

Also submit a signed declaration that all contest rules and regulations for amateur radio in the country of the contestant have been observed.

6 Official log and sample summary sheets are available from *CQ*. A large self-addressed envelope with sufficient postage or IRCs must accompany your request.

If official forms are not available, you can make your own with 40 contacts to the page.

XIV Disqualification: Violation of amateur radio regulations in the country of the contestant, or the rules of the contest, unsportsmanlike conduct, taking credit for excessive duplicate contacts, unverifiable QSO's or multipliers will be deemed sufficient cause for disqualification. Actions and decisions of the *CQ WPX Contest Committee* are official and final.

XV Deadline: All entries must be post-marked no later than *10 May 1985* for the SSB section and *10 July 1985* for the CW section. *Indicate SSB or CW on the envelope.* From isolated areas the deadlines can be made more flexible.

All logs go to: CQ Magazine, WPX Contest, 76 N Broadway, Hicksville, NY 11801 USA.

Questions pertaining to the WPX Contest can be sent to: WPX Contest Director, Steve Bolia, N8BJQ, via CQ Magazine, 76 N Broadway, Hicksville, NY 11801 USA. **AR**

WICEN NEWS

Derek McNiel
17 Manning Road, Malvern East, Vic. 3145

WICEN — VICTORIA LEARNS A LESSON OR TWO EARLY IN 1985

Last month you heard about the activity at Maryborough where WICEN operators from the Ballarat and Bendigo regions were called in to assist Department of Agriculture veterinary officers in their post-fire assessment and clean-up operations. High praise for the performance of those operators was still being handed out in Melbourne when the State Emergency Service requested WICEN support for the activity in the Bright/Porepunkah area. The response was immediate with operators from Shepparton and the north-east taking up the first shift. Lack of numbers in that region necessitated a call to other WICEN regions for reinforcements: Region 13 (East Metropolitan) came to the party. The activation lasted five to six days and consisted of a 'round-the-clock' communications link between the Operation Headquarters at Bright and the Relief Centre at Porepunkah. In all, sixteen operators took part including two from across the border in New South Wales.

Some valuable lessons were learned during this activation and are summarised below:

- *Always travel two to a car and two cars to a convoy, if at all possible.*
- *Maintain radio contact between vehicles on one frequency and stick to it. The WICEN simplex frequency, 146.500 MHz is recommended as this will enable other WICEN stations to contact you when you come into range.*
- *Always be prepared to be totally self-sufficient; you never know what facilities and comforts will or will not be provided.*
- *BEWARE the Low Voltage T-plug; not everyone conforms to the same polarity convention. It is recommended that you carry in your WICEN kit a T-plug with a LED and Resistor to indicate when the polarity of a 'foreign' T-socket is compatible with yours. WICEN convention is: vertical pin is POSITIVE, horizontal pin is NEGATIVE.*
- *Always take warm clothing even when going into supposedly hot areas; in the Victorian countryside very hot days may be followed by very COLD nights.*
- *An observation from the Great Victorian Bike Ride — there is no excuse for any Aussie to get a sunburnt nose or bald-patch! Remember, this is the land of the sunhat and zinc-cream. No sympathy from me if you don't go prepared.*
- *Have you got a space-blanket in your WICEN kit? Do you carry a WOOLLEN blanket in your car at all times?*
- *A message for the co-ordinators — eight-hour shifts are too long even when traffic is light. A maximum of four hours is recommended with a half-hour hand-over period prior to the official start time of the shift.*

Well, if you can remember that lot you should be able to keep yourself out of some trouble. Many of the tips may be 'old hat' to many experienced WICEN operators; they are recorded here for the benefit of those less experienced people who are keen to learn. *Is there any old hand out there who could manage to stir his/herself sufficiently (no not the cups of tea!!) to provide a regular column of WICEN tips?* I could anticipate zero response between now and 1986 but, on the other hand if no one else offers, I don't mind betting Harry (Region 13 Co-ord) will appoint someone to do it!

Space does not permit detailed reports on February activities but it has been a busy time on the training and community support scene. Bob Hose (Shepparton and NE Co-ord) covered the Moama Ski Race on 10th February, Col Pomroy (Regions 9 and 10) covered a car rally on 16th February, and Mark Stephenson displayed a multitude of WICEN operators at Tullamarine for the Open Day weekend of 23rd and 24th February. Down in the West Country (Hamilton), Regions 4, 5, 17 Co-ordinator, Ken Taylor organised a training session on 16th February which attracted 13 participants from as far away as Port Campbell, Warrnambool, Portland, Poolaijelo and Strathdownie. All in all a pretty busy month . . . at the time of writing it's not yet over!

One final note: if you sent in your questionnaire in November 1983 and haven't heard a word since, first of all blame the COMPUTER (everyone else does!) then contact your regional co-ordinator.

AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

It's nice to be able to open the column with congratulations once more for another call up-grade . . . this time to Bruce, formerly VK6KVV, the VK6 Divisional IW Co-ordinator, who now proudly signs VK6XZ. Well done, Bruce, and nice to see another amateur who has mastered the mysteries of CW. Bruce is always looking for reports of intruders on the bands from those in Western Australia.

Incidentally, Bruce is heading for 3D2 country shortly, so keep an eye out for intruders on the way, Bruce.

No news yet from VK1 as to whether they have found a replacement for Grahame VK1GP, who had to resign the IW post to move interstate. Any VK1 readers who are interested in helping out with the Intruder Watch, which entails a minimum of work, may like to indicate their desire to the VK1 Divisional Office. I can supply information on what is entailed if you care to write to the address at the top of the column.

Queensland, always innovative in their ideas, have come up with a good one for the Intruder Watch. They are assigning each member a segment of the amateur bands, and that member will report his findings to the Divisional IW Co-ordinator, Gordon VK4KAL. This idea certainly has merit, and we look forward with great interest at the results of the enterprise. Having finalised all reports and summaries for last year, a few statistics are presented for the information of interested parties:

STATISTICS FOR 1984

The figures in brackets are for 1983

No of Intruders reported:	*7468 (6908)*
No using RTTY:	*1348 (986)*
No using AM:	*5157 (5339)*
No using CW:	*963 (583)*
No of Identifications:	*727 (585)*
No of Observers Reporting:	*98 (94)*

621 pages of reports were received at this QTH, (605), and VK4 continues to supply most reports, with VK2 coming a close second. The number of reports has increased for 1984, but so has the number of intruders. Happily, the number of contributing observers has increased also. Let's hope we can report a further increase in Observer stations at the end of 1985.

Just had a phone call from the DOC in Melbourne, to the effect that they have been monitoring 21.032 MHz, and are satisfied that the USSR Intruder 'UMS' is in fact operating there. DOC has sent a telex to the USSR Administration, asking for their co-operation in causing the offending station to cease the interference on the 21 MHz Amateur Band. If no reply is received, they intend to go to the International Frequency Registration Board, for further action.

Chalk one up for the DOC, and our protests apparently do not fall on deaf ears. If the USSR fails to co-operate, there is very little else we can do about it. But at least we've done as much as we can.

That's all for this month, 73 till next time.

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Freda VK2SU, Dave VK5RN, Brian VK5CA, Stan VK2DZP and Denise VK5YL.

Hello again, the months are getting shorter or else I am getting slower.

Well the contest certificates are all out except for the Mrs McKenzie Trophy Certificate which was still at the printers to be picked up on 22nd February so it will have been sent before you are reading this report.

The winner of the Mrs Mac segment Jill VK4VNK is one of the new ALARA members as a result of the article which appeared in New Idea Magazine in October 1983. Jill was advised to contact Wendy VK4BSQ for tuition in radio theory; so in less than a year Jill studied, sat for and passed her novice exams and was proficient enough in CW to win the inaugural certificate.

Congratulations on a very fine achievement Jill and I have heard a new call sign is soon to be heard from your QTH.

Congratulations also must go to Wendy VK4BSQ for her teaching ability as I am sure she was a great help to Jill. With her own busy programme Wendy has been doing a teaching diploma course in her "spare" time over the past couple of years, and has been knee deep in study at contest time.

In the last contest in 1983 Wendy was runner up overall and this year outright winner so a very good example to us all.

WELCOME TO NEW MEMBERS

Etsuko JA6KYP, Gail XL2TZG, Darleen WD5FQX, Junia YJ8NJW, Akiyo JH1GMZ, June KM8E.

Marilyn VK3DMS has had a request from Marie ON4AYL for slides of YLs for a convention they are having later this year; so if you have slides taken at local radio gatherings please contact Marilyn.

ALARA will be ten years old this year and to celebrate this each state is going to arrange, if possible, an afternoon where members can meet. The majority have indicated in favour of two or three yearly get-togethers for national gatherings.

AR

STOLEN EQUIPMENT REGISTER

In accordance with 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their enquiries.

MODEL	*SER NUMBER*	*FROM*
ICOM IC25A	*03831*	*VK2DPM*
ICOM IC45A	*01876*	*VK2DPM*
ICOM IC211	*6804309*	*VK3BRV*
KYOUTO FM144/10	*5027*	*VK2KUR*
DSEXPLORER		

70 cm TRANSCEIVER (HAS EXTENSIVE INTERNAL MODS)

ICOM IC215	*05156*	*VK2AMX*
YAESU FT 209RH	*4K050838*	*VK3CE*
ICOM IC-2A	*04484*	*VK1MX*

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz

AMSAT PACIFIC	**AMSAT SW PACIFIC**
Control: JA1ANG	*Control: W6CG*
1100 UTC Sunday	*2200 UTC Saturday*
14.305 MHz	*21.280/28.878 MHz*

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Amateur Satellite Report and UOSAT Bulletin Number 113, February 1985.

RS SATELLITE STATUS

Tests of batteries of RS-5, 7 and 8 show various results — RS-5's battery is almost ruined. Anomalistic telemetry from RS-5 was reported during early January when the Russian spacecraft were experiencing eclipses. RS-5 was falsely identifying itself as RS-3 and sending garbled telemetry. RS-7's battery is in mediocre condition while RS-8's is in excellent condition. RS-5 and 8 will be in transponder mode while 7 will be in robot and bulletin mode for the next period. All satellites will be off on Wednesday Moscow time which is from 2100 Tuesday to 2100 Wednesday UTC. Telemetry has been reported from RS-1 recently . . . Tnx UoS.

UoSAT-OSCAR-9 OPERATIONS

The UoS Ground Station has recovered and returned the operating schedule of UO-9 back to normal. The UoSAT-1 Experiment Schedule changed from 180185 to reflect majority interests of the user community derived from an analysis of the many reports and suggestions received during 1984. The Bulletin/Digitalker/Telemetry mode at weekends has been changed to transmit approx 3 mins of 1200 Bps telemetry alternating with approx 6.5 mins of Bulletin — to make it easier to receive complete copies of the Bulletin! The Bulletin 'right justification' has been removed experimentally to save space — any comments? The Digitalker experiment has been moved to Mondays where it will alternate with 1200 Bps Telemetry, as it is primarily intended for educational demonstrations. The schedule is as follows:

Friday — load Bulletin
Saturday — Bulletin/1200 Bps telemetry
Sunday — Bulletin/1200 Bps telemetry
Monday — DIGITALKER/1200 Bps telemetry
Tuesday — Radiation data — next week CCD data
Wednesday — Computer check-summed telemetry
Thursday — Whole orbit telemetry survey

UoSAT-OSCAR-11 OPERATIONS

The data 'bypass' was successfully loaded into the DCE last week and shortly afterwards the 1802 OBC operations software was reloaded. The OBC 'bypass' facility has been checked and handover from the DCE to the OBC will occur when the next phase of DCE evaluation tests are ready to go. The reloading operation of the DCE and OBC software has been refined and future requirements should be completed within only a few orbits. The DCE is intended to provide an experimental facility to evaluate the hardware, software and operational protocols that will be required for a fully operational satellite 'mailbox' system called PACSAT — **PA**cket **C**ommunications **SAT**ellite.

The next phase of DCE tests will comprise memory integrity checks and a current draw baseline experiment should be ready to try later in the following week. The latter part of this week has seen considerable activity on the CCD and DSR experiments. A number of images have been taken during the night and day to attempt to establish the dynamic range of the system. The images were dumped slowly at 1200 Bps on the 145 MHz downlink and are being analysed.

For those interested in following these Preliminary tests, the data format is as follows:

CCD Imager size . . . 384 horizontal x 256 vertical (Pixels)
DSR Data Format (note: the same for CCD and P/Wave data)

One horizontal line comprises three 128 Byte blocks, i.e. line 1 has blocks 0, 1, 2; line 2 has blocks 3, 4, 5 etc.

The DSR data is transmitted as 128 Byte data blocks with sync, CRC, Hamming and Fire error detection and correction codes. When the end of a DSR dump is reached (i.e. block 767) then the dump cycles round again from block 0.

The block format is:

Sync code (30, 7B, 91 hex); 16 bit address (including Hamming); 128 Bytes of data; CRC; Fire Code.

The data is normally sent at 1200 Bps with 1 start; 8 data; and 1 stop bit.

The 16 bit address comprises the following:

P h3 h2 h1 h0 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0 (Hamming bits) (MSB . . . address bits . . .)

The Hamming bits are formed by the exclusive OR of 7 bits each

h0 = EXOR(A0 A1 A3 A4 A6 A8 A10)
h1 = EXOR(A0 A2 A3 A5 A6 A9 A10)
h2 = EXOR(A1 A2 A3 A7 A8 A9 A10)
h3 = EXOR(A4 A5 A6 A7 A8 A9 A10)
P = EXOR(A0 A1 A2 A4 A5 A7 A10)

PACSAT

A meeting will be held in Washington DC (USA) between 9-11 March 1985 to formulate detailed proposals for the PACSAT mission and fund-raising operations. With the successful demonstration of the Digital Communications Experiment on-board UoSAT-OSCAR-11, it has now become imperative that the fundamental design philosophies, resource requirements, schedules and launch interfaces for PACSAT are defined. Perhaps the overriding problem at this stage is the identification of funding sources — without which the technical problems become somewhat academic. The March meeting will address this problem specifically . . . UoS.

MANNED MISSIONS

The launch of the next radio amateur-in-space is holding at 9 July 85 according to AMSAT's VP-Manned Space, Bill Tynan W3XO. W0ORE will carry a sophisticated equipment suite if the approval cycle goes as expected . . . UoS.

MODE L REPORT

The improvement in AO-10 Mode L performance over the last year has been astounding according to several veteran satellite users. Recent tests show surprisingly moderate power levels are adequate for enjoyable QSOs on the newest OSCAR mode.

When first launched in 1983, AO-10 Mode L showed disappointing performance. The required uplink power was about 10dB higher than anticipated according to Engineering Vice President Jan King W3GEY. Failure analysis first focused on an antenna relay used to select either the 1269 helix or omni antenna for the Mode L receiver. Subsequent analysis, however, now makes this possibility seem less likely according to W3GEY. On the other hand, diagnosis by specialists in AMSAT DL as well as by AMSAT now points towards the HELAPS (High Efficiency Linear Amplification by Parametric Synthesis) amplifier as the culprit. According to W3GEY, DJ4ZC and his team at AMSAT DL strongly suspect a bias regulator in the HELAPS, a JANTXV 2N2222, as the failure locus. The HELAPS is consequently running as a Class C amplifier rather than its linear mode as designed. This reduces the output which in turn forces a stronger uplink for a given downlink signal. Some estimates a year ago suggested upwards of 30 kW EIRP were required for usable QSOs. That value compared with the pre-launch estimates of 2 to 3 kW EIRP.

Now, however, due to a number of favorable circumstances, performance appears to have improved to not only pre-launch expectation but beyond. According to K0RZ, the improvements in Mode L performance derive from several sources. "Since Mode L comes on well before apogee now, as compared to previously, the satellite is closer. The path loss improvements add up to about 5dB improvement," Bill told ASR recently. "The major improvement is pointing angle," he added. "The Mode L receive helix has a fairly narrow beam width and the choice of Mode L operating times is absolutely critical if reasonable performance is to be attained. The other major improvement comes from the re-biasing of the faulty output stage with heavy loading. For example, as an experiment, Cor VE7BBG, would aim his big EME array at AO-10 and transmit. Instantly signals which were not heard before come up by many dB. The output stage is self-biasing to an extent with load so that it is running in a more linear regime. The same effect is noticed to a degree when the RTTY beacon comes on to replace the PSK beacon."

K9CIS says the improvement in downlink when the RTTY telemetry is on can amount to as much as 6 dB. AMSAT is looking into ways to keep the RTTY beacon on more of the time according to W3GEY.

Meanwhile, satellite controller VE1SAT says that we can look forward to continued favorable pointing angles for Mode L for the foreseeable future. K9CIS adds that he is aware of Japanese Mode L operators having successful CW QSOs with only 10 watts to a single loop Yagi! In other words, if you do it right, you can get along with 1 kW EIRP or less. The point is that it would appear that at present Mode L performance can be not only as good as but superior to pre-launch estimates.

. . . ASR

UPS AND DOWNS

Courtesy of Bob VK3ZBB we have the latest list of launches and re-entries.

de Colin VK5HI

"They're Checking Out Satellites on the Ground"

by B. Lebedev

(Translation from Russian by Dex Anderson W4KW of an article in the "Sovetskiy Patriot" of 16 Jan, 1985)

The successful operation over a period of three years of radio amateur satellites 'Radio-5' through 'Radio-8' has stimulated further work by radio electronics enthusiasts in creating new, improved on-board satellite equipment. In the volunteer space-technology laboratory of the Zhdanov Rayon Radio Club in Moscow city, tests have begun of one variation of on-board repeater and automatic operator-'robot'. The following members of the laboratory took part in creating them: A Leonov, B Lebedev, A Papkov, V Solovyev, B Omel'chenko, A Savchenko, Yu Kornilov, V Mironov, S Rodin, and many others.

In November of last year, in the 'satellite' segment of the radio amateur 10 metre band (frequency 29.402 MHz) the 'RS-9' beacon went on the air. It transmits telemetry information analogous to that sent into the airwaves from orbit by the 'Radio' series of satellites. At year's end the repeater too was switched on translating the band of frequencies 145.860-145.900 MHz to the segment 29.360-29.400 MHz. Many shortwavers and ultrashortwavers from Moscow and the Moscow area (UK3A, RS3A, RA3AHM, RA3AMM, and others) have already made initial contacts via this repeater. The principles for the use of the terrestrial repeater are the same as those for the use of those now operating from space orbits. The basic principle is choice by the operator of a transmitter power level such that the translated signal level does not exceed that of the beacon signal, in which event mutual interference will be minimised.

The repeater is switched on around the clock, but the 'robot' is on the air irregularly. It transmits its own CQ on the frequency 29.320 MHz, announcing at that time the frequency on which it should be called. Operation with the 'robot' is conducted in accordance with the same programme as with the 'robots' of the 'Radio' series of satellites. **AR**

SATELLITE ACTIVITY FOR PERIOD NOVEMBER 1 TO NOVEMBER 27, 1984

LAUNCHES

Initial Data

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incln deg	Remarks
1984 —								
113A	STS 51-A	USA	Nov 8	90.4	299	288	28.5	See below
113B	ANIK D2	Canada	Nov 9	1437.1	35824	35788	1.8	* Telesat
113C	SYNCOM IV-1	USA	Nov 10	1380.9	35927	33471	3.3	* Leasat
114A	SPACENET II	ESA	Nov 10	1441.7	36274	35518	0.1	
114B	MARECS B2	ESA	Nov 10	1431.6	35793	35603	3.1	
115A	NATO 3D	USA	Nov 14	647.6	36425	411	22.9	
116A	Cosmos 1608	USSR	Nov 14	88.9	248	195	70.0	
117A	Cosmos 1609	USSR	Nov 14	89.9	344	193	72.9	
118A	Cosmos 1610	USSR	Nov 15	105	1027	987	83	
119A	Cosmos 1611	USSR	Nov 21	89.3	326	181	64.8	
120A	Cosmos 1612	USSR	Nov 27	98.1	1231	130	82 6	

On board Discovery STS 51-A were astronauts F Hauck, D Walker, J Allen, D Gardner and A Fisher. The payload included ANIK-D2 and SYNCOM IV-1. The mission recovered spacecraft PALAPA-B2 and WESTAR 6.

RETURNS

During the period thirty-three objects decayed including the following:—

1973 — 106A Molniya 2-8
1984 — 011B Westar 6
1984 — 045A Cosmos 1552
1984 — 113A STS 51-A
1981 — 085A OPS 3984
1984 — 011D Palapa-B2
1984 — 102A Cosmos 1599
1984 — 117A Cosmos 1609

SATELLITE ACTIVITY FOR PERIOD NOVEMBER 28 to DECEMBER 24, 1984

LAUNCHES

Initial Data

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incln deg	Remarks
1984 —								
121A	Cosmos 1613	USSR	Nov 29	—	—	—	—	
122A	USA-6	USA	Dec 4	—	—	—	—	
123A	NOAA-9	USA	Dec 12	102	862	841	98.9	Weather Sat.
124A	Molniyna 1.63	USSR	Dec 14	737	40900	461	62.8	TV & Radio
125A	VEGA 1	USSR	Dec 15					See be ow
126A	Cosmos 1614	USSR	Dec 19	88.7	228	208	50.7	
127A	Cosmos 1615	USSR	Dec 20	93.9	501	437	65.9	
128A	VEGA 2	USSR	Dec 21					See below
129A	USA-7	USA	Dec 22					

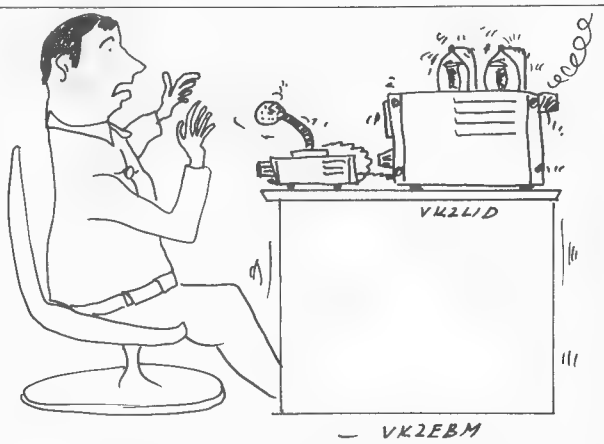
1984 — 125A VEGA 1 and 1984 — 128A VEGA-2 are Automatic Interplanetary Stations launched for an investigation of planet Venus and comet Halley. The satellites carry scientific instruments and service systems.

RETURNS

During the period 39 objects decayed including the following satellites:—

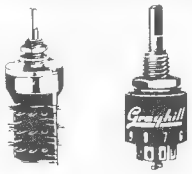
1970 — 025 MA Molniya 2-8 Dec 13
1984 — 121A Cosmos 1613 Dec 24
1984 — 126A Cosmos 1614 Dec 19

Please see page 48 for Apogees . . .



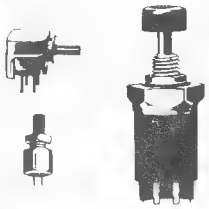
". . . No! I won't switch the linear in OM — I'm frightened of it!" . . . VK2COP.

Grayhill means switches. . . and much more



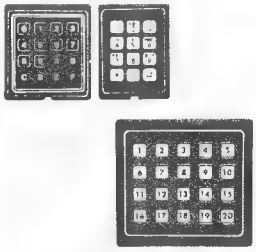
Rotary Switches

Single deck, space saving. Multi-deck, 1 to 12 poles per deck—2 to 24 positions per pole—1 to 12 decks. Military and commercial types. Key-locks, momentary and isolated positions.



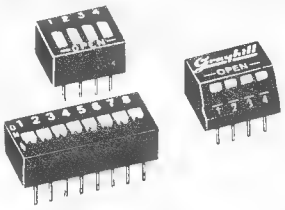
Pushbutton Switches

Miniature in size, SPST, SPDT, DPST or DPDT circuitry. Wiping, snap action or butt contact. Lightable and non-lightable. 1,000,000 operations rating for some units!



Keyboards

12, 16, and 20 button arrays. Matrix, single pole/common bus, 2 out of 7 (or 8), SPST thru 4PST and coded output circuitry options. 1/2", 11/16", or 3/4" button centers. Many legend choices. Long life rating at logic level switching loads. Tactile feedback even in sealed types. Lighted versions available.



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SATELLITE **OSCAR-10 APOGEES APRIL 1985** |----------BEAM HEADINGS----------|

DATE	DAY #	ORBIT #	APOGEE CO-ORDINATES UTC HHMM:SS	LAT DEG	LON DEG	SYDNEY AZ DEG	EL DEG	ADELAIDE AZ -DEG	EL DEG	PERTH AZ DEG	EL DEG
April											
1	91	1353	0043:26	−0	234	320	42	339	48	19	51
2	92	1355	0002:29	−0	224	333	47	355	50	34	47
2	92	1357	2321:32	−0	215	349	50	11	49	47	42
3	93	1359	2240:35	−1	206	6	51	27	47	57	35
4	94	1361	2159:38	−1	196	22	49	40	42	65	27
5	95	1363	2118:41	−1	187	36	45	51	36	72	20
6	96	1365	2037:44	−1	178	48	39	60	29	78	12
7	97	1367	1956:46	−1	168	58	32	68	22	83	4
8	98	1369	1915:50	−1	159	66	25	74	14		
9	99	1371	1834:52	−1	149	73	17	81	7		
10	100	1372	0614:24	−1	325					274	−0
10	100	1373	1753:55	−1	140	79	10	86	−1		
11	101	1374	0533:27	−1	315					279	8
11	101	1375	1712:58	−1	131	85	2				
12	102	1376	0452:29	−2	306					284	16
13	103	1378	0411:33	−2	297			277	4	291	24
14	104	1380	0330:35	−2	287	275	2	283	12	298	32
15	105	1382	0249:38	−2	278	280	10	289	20	307	39
16	106	1384	0208:41	−2	269	286	18	296	28	318	46
17	107	1386	0127:44	−2	259	293	25	304	35	332	51
18	108	1388	0046:47	−2	250	301	33	315	42	349	55
19	109	1390	0005:50	−2	241	310	40	327	47	7	55
19	109	1392	2324:53	−2	231	322	46	342	51	25	53
20	110	1394	2243:56	−3	222	336	51	359	53	40	48
21	111	1396	2202:58	−3	212	353	53	17	51	52	42
22	112	1398	2122:02	−3	203	11	53	32	48	62	34
23	113	1400	2041:04	−3	194	28	50	45	43	69	27
24	114	1402	2000:07	−3	184	42	45	56	36	76	19
25	115	1404	1919:10	−3	175	53	39	64	29	81	11
26	116	1406	1838:13	−3	166	62	32	72	21	87	3
27	117	1408	1757:16	−3	156	70	24	78	14		
28	118	1410	1716:18	−4	147	77	17	84	6		
29	119	1411	0455:50	−4	322					273	3
29	119	1412	1635:22	−4	137	82	9	90	−2		
30	120	1413	0414:53	−4	313					278	11
30	120	1414	1554:24	−4	128	88	1				
May											
1	121	1415	0333:56	−4	303			271	−0	284	20
2	122	1417	0252:59	−4	294	269	−3	277	8	290	28
3	123	1419	0212:02	−4	285	275	5	283	16	298	36
4	124	1421	0131:05	−4	275	280	13	289	24	307	43
5	125	1423	0050:08	−4	266	286	21	296	31	319	50
6	126	1425	0009:10	−4	257	293	29	305	39	335	55
6	126	1427	2328:14	−5	247	301	37	316	45	354	58
7	127	1429	2247:16	−5	238	311	44	330	51	14	57
8	128	1431	2206:19	−5	228	324	50	346	54	32	54
9	129	1433	2125:21	−5	219	340	54	5	55	46	48
10	130	1435	2044:24	−5	210	358	56	23	53	57	41
11	131	1437	2003:28	−5	200	17	55	38	49	66	34
12	132	1439	1922:30	−5	191	34	51	51	43	73	26
13	133	1441	1841:33	−5	182	48	46	61	36	80	18
14	134	1443	1800:36	−5	172	58	39	69	28	85	9

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will be hosting the 7th bi-ennial

NORTH QUEENSLAND CONVENTION

over the weekend of Friday 30th August to Sunday 1st September, 1985.
On-site accommodation is available at James Cook University.

Further details from the Convention Secretary, TARC PO Box 964, Townsville, Q4810, or phone Bob Mann VK4WJ on (077) 81 4450 (W) (077) 79 7869 (H).

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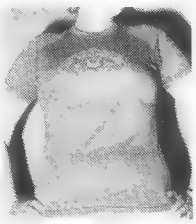
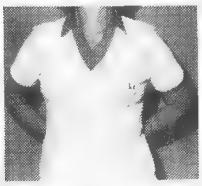


T-Shirts.



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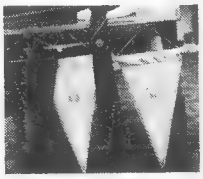

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EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
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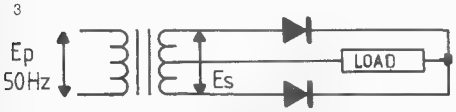
All readers are invited to "have-a-go" at this Novice Theory Trial Examination, then check the answers at the end of the Hamads.

TRIAL EXAMINATION NOVICE THEORY

Select the correct or most appropriate answer.

1 Of the substances aluminium, carbon, silicon and distilled water, the best conductor of electricity is:
a aluminium
b carbon
c silicon
d distilled water

2 The frequency at which a quartz crystal oscillates is affected by.
a the voltage applied to the circuit
b the mechanical stability of the surrounding components
c the way it is cut
d whether or not is has impurities incorporated into it

3


The output across the load above will be:
a 50 Hz at E_s
b 50 Hz at $\frac{E_s}{2}$
c 100 Hz at $E_s \times 2$
d 100 Hz at $\frac{E_s}{2}$

4 The type of transmission which requires the least bandwidth is:
a CW
b amplitude modulated carrier
c single sideband suppressed carrier
d double sideband suppressed carrier

5 A radio signal having a wave-length of 10 metres corresponds to a frequency of:
a 28 MHz
b 21 MHz
c 10 MHz
d 3.5 MHz

6 The inductance of a coil can be lowered by:
a lowering the voltage across it
b adding more turns
c making the turns closer together
d using an air core instead of an iron core

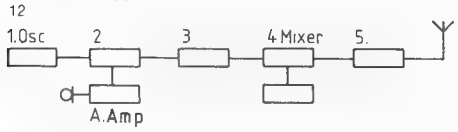
7 A receiver is tuned to a frequency of 28.145 MHz. If the first IF is 10.700 MHz, the local oscillator would be tuned to:
a 10.700 MHz
b 28 145 MHz or 10.700 MHz
c 38.845 MHz or 17.445 MHz
d 18.845 MHz

8 When transmitting, the feed point of a quarter wavelength mobile antenna will:
a be at earth potential for RF
b have an input impedance of about 150 ohms
c be at a voltage peak
d be at a current peak

9 A moving coil meter can measure alternating current by use of a :
a resistor in series
b diode in series
c shunt diode
d capacitor in parallel

10 The SWR of an antenna is a measure of the ratio between
a maximum and minimum voltages on the feedline
b voltage at feedpoint and voltage at end
c voltage at feedpoint and current at feedpoint
d forward resistance and reflected resistance

11 If a Single Sideband transmission is over-modulated, the effect will be an increase in
a intelligibility
b bandwidth
c useful power output
d carrier suppression

12


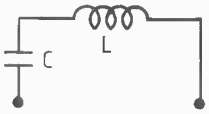
The output from stage 3 of this single sideband transmitter should consist of
a full carrier plus one sideband
b one sideband and a low level of carrier
c two sidebands with a low level of carrier
d one sideband only

13 A Yagi antenna for use on the 10 metre band would have a:
a driven element approximately 10 metres long
b director slightly longer than the driven element
c reflector slightly longer than the driven element
d driven element approximately 2.5 metres long

14 High frequency communication over long distances is possible at night because of:
a ducting through the upper layers of the atmosphere
b reflection of signals by the D layer
c refraction of signals by the F layer
d intense ionisation of the troposphere by solar flares

15 To achieve maximum power transfer between a transmitter of 50 ohms output impedance and an antenna of 75 ohms feed impedance it is necessary to use
a an antenna tuning unit in the transmission line
b a dummy load
c balanced transmission line
d a change over relay

16 A marker crystal oscillator may be used to
a measure the intermediate frequency of a receiver
b produce harmonics for multi-band operation
c calibrate a transceiver frequency range
d resolve a CW signal on a SSB receiver

17


In this tuned circuit
a impedance is maximum at resonance
b resonance occurs when the reactances of C and L are equal
c resonant frequency will decrease as the value of C rises
d total impedance is the sum of the reactances of C and L

18 In a triode vacuum tube
a a space charge is developed when the anode is made sufficiently positive
b conduction occurs whenever the anode potential rises slightly above the cathode potential
c electron flow is controlled by the potential applied to the control grid
d the grid is always kept at earth potential.

19 A transformer primary winding draws 10 amps at 240 volts from the mains supply. If the load on the secondary draws 16 amps at 100 volts, the transformer is operating at an efficiecy of about:
a 16%
b 48%
c 67%
d 160%

20 An RF amplifier operating in Class C:
a should have an efficiency of about 30%
b will conduct for about 30% of each cycle
c could be used as a linear final amplifier
d will have the bias on the grid (or the base) set to cut-off

21 A P-N junction is forward biased when:
a electrons flow from P type to N type material
b a positive potential is applied to the P type layer
c the voltage across the junction exceeds the leakage current
d the depletion layer is saturated with current carriers

22 Parasitic oscillations may be
a produced by overdriving linear amplifiers
b prevented by neutralising the audio amplifier stage
c prevented by use of a high pass filter at the transmitter output
d caused by unwanted resonances in the final amplifier

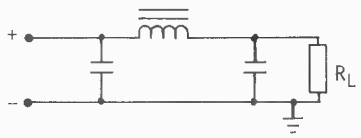
23 In a Field Effect Transistor (FET) the major electron flow is from
a Source to Drain and controlled by Gate Voltage
b Source through Gate to Drain
c Source to Drain and controlled by Gate current
d Drain to Gate and controlled by the Source-Gate resistance

24 A simple 28 MHz transmitter using a 3.55 MHz crystal in the oscillator stage would also need to have
a two tripler stages
b one doubler and one tripler stage
c one quadrupler stage
d three doubler stages

25 A resistor of known quality is colour coded red, violet, orange, silver. Its resistance should be between:
a 3500 and 3900 ohms
b 22,000 and 31,000 ohms
c 25,000 and 29,000 ohms
d 360,000 and 400,000 ohms

26 The final amplifier stage of a single sideband transmitter must be:
a linear
b operated in Class C for efficiency
c directly coupled to the modulator
d capacitively coupled to the preceding stage

27 A solid state device which can be used to provide a regulated DC voltage could be a.
a varicap diode
b zener diode
c lead-acid battery
d unijunction transistor

28


This circuitry features a:
a voltage doubler
b high pass filter
c parallel tuned circuit
d capacitor input filter

29 Unwanted harmonics in a transmission could be detected by using a:
a dip meter as a tunable absorption wave meter
b standing wave ratio meter
c broadcast band receiver
d beat frequency oscillator

30 A double conversion superheterodyne receiver must have two:
a radio frequency amplifier stages
b different intermediate frequencies
c detector stages
d audio amplifier stages

31 The type of microphone which functions by movement of a coil inside a magnetic field is the
a dynamic
b carbon
c crystal
d condensor

32 Key clicks can be prevented by:
a keying the oscillator stage
b using a low pass filter at the transmitter output
c using a smoothing filter in the key circuit
d regulating the transmitter power supply output voltage

33 The Maximum Usable Frequency:
a is always below the upper limit of any HF amateur band
b is generally lower during periods of sunspot maxima
c depends on the SWR of the antenna
d varies according to time of day, season and latitude

34 Three pin mains plugs should be wired so that the:
a red conductor is connected to the earth pin
b brown conductor is connected to the active pin
c green conductor is connected to the neutral pin
d fuse, if any, is in the blue conductor

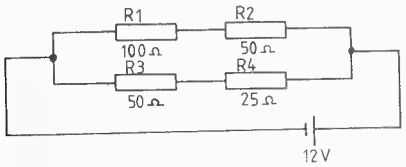
35 In a direct conversion receiver selectivity is provided by:
a the audio stages
b a high second IF stage
c a very sensitive Automatic Gain Control system
d the RF amplifier stage

36 Fading of HF signals during a long distance contact is often due to
a changes in the sunspot pattern
b a decrease in the ionisation of the troposphere
c a change in the radiation pattern of the transmitting antenna
d multiple path signals arriving at the receiving antenna out of phase with each other

37 When soldering some types of transistor into a circuit it is good practice to hold the leads with pliers to:
a avoid damage due to overheating
b prevent solder resin from affecting the transistor case

c avoid handling the transistor which may contain harmful material
d prevent the leads from being tinned over their whole length

38



The voltage drop across R_2 will be:
a the same as across R_3
b twice that across R_4
c the same as across R_4
d 6 volts

39 A keying relay may be used in a CW transmitter
a to prevent formation and radiation of key clicks
b to avoid having high voltages across the key contacts
c to switch the antenna from the receiver to the transmitter
d when the operator wishes to transmit a pre-recorded message

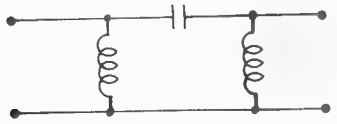
40 A television receiver suffers interference on all channels when a nearby Novice amateur transmits. The problem could be reduced by
a using a high pass filter at the transmitter output
b using a high pass filter at the receiver input
c inserting a parallel tuned trap in the transmitter feedline
d improving the shielding of the transmitter

41 When testing a transmitter for prolonged periods an artificial antenna should be used because:
a it provides lower load impedance than a transmission line
b it efficiently radiates a steady signal
c most modern transmitters require regular checking of the output impedance
d this prevents interference to other stations

42 Cross modulation may occur in a broadcast receiver:
a if the receiver has inadequate sensitivity
b by mixing of a strong local signal with an amateur signal
c by rectification of an amateur signal in the audio stage
d when an amateur signal mixes with the receiver IF

43 Which circuit can efficiently detect both SSB and CW signals?
a BFO and diode
b crystal set
c regenerative detector
d diode detector

44



This circuit could be used as a:
a trap in a multiband dipole antenna
b low pass filter
c high pass filter
d safety device in a high voltage power supply

45 A simple method of matching a balanced dipole antenna to co-axial cable may use a.
a change-over relay
b balun
c series tuned output circuit at the transmitter
d pair of diodes back to back

46 The ability of a receiver to remain tuned to the desired frequency is known as:
a stability
b sensitivity
c selectivity
d suppression

47 A 47 k ohm resistor through which 10 milliamps flow should have a power dissipation rating of at least:
a 0.5 watts
b 1.0 watts
c 2.5 watts
d 5 watts

48 The 'Beta' of a junction transistor refers to its
a current amplification
b biasing arrangement
c tendency to thermal runaway
d internal capacitance

49 Five capacitors, each of 22,000 pF are connected in parallel. The total capacitance will be.
a 0.01 μF
b 0.11 μF
c 4,400 pF
d 11,000 pF

50 'Sound bars' may appear on a television screen:
a as a result of receiver overload in the AGC section
b as dark vertical lines with cross-hatching between them
c when a strong interference signal is amplitude modulated
d when two or more harmonics of an interfering signal are received

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, April is here and already a quarter of the year has gone. As expected, conditions have been unpredictable on HF. Signals on the EW path have been well down while propagation on the NS path have been quite exceptional. I have been copying Asian stations around midday local time on the 19 and 25 metre bands, which is somewhat unusual for this far south. It can be said that this could be rightfully attributed to the upgrade of my receiving equipment rather than propagation alone. Yet signals from Europe on the LP as well as North America have been frequently noted by their absence.

I believe that listeners in northern Australia often hear Asian signals in the daytime, yet miss out hearing LP signals in South America that we frequently observe in the late mornings-early afternoons here in south eastern Australia over the winter months. I myself have witnessed this while in Brisbane a few years ago, especially on 9 and 11 MHz. Asian signals dominated the bands with the usual Europeans I usually copy in Tasmania not heard at all. So I have been surprised to catch these Asians in the daytime here, due primarily to the low sunspot count.

And talking of propagation, I must say that I was very surprised to hear the upsurge of activity in the CW section of the ARRL Contest on the 16th and 17th of February. Stateside stations were copied at quite exceptional levels on both 7 and 14 MHz around 2100 UTC, where normally no propagation exists on the LP from North America. Even as late as 2200 UTC the LP signals were quite readable on 7 MHz. This makes me wonder if the amount of traffic keeps the bands open longer, or is it that amateurs no longer try to see if there is any propagation. I somehow suspect the latter, as the amount of traffic within the phone allocations was considerably well down in comparison with CW activity.

The 160 metre band was also an eye-opener to me with propagation to the US West Coast around 1330 UTC on the 17th. I didn't hear any VKs working them around 1.825 MHz, but the JAs were heard up on 1.910-1.915 MHz working them split. There were some VKs active on SSB around 1.815.5 nattering amongst themselves, seemingly unaware of the DX wealth just a few kilohertz away. I think that more attention could be paid to the DX windows on 1.8 and 3.5 MHz as propagation should be exceptional during this sunspot minima. You may be surprised. Unfortunately I don't have operational capability on top bands but that doesn't prevent me listening in.

The Radio Nederlands Lopik site ceased operating on the 31st of March, when the new Flevoland site became fully operational. Incidentally Dutch radio amateurs were allowed to use the antenna arrays to conduct experiments on the 16th and 17th of February. They were primarily operating on 7 and 14 MHz on SSB, but after numerous requests from European amateurs, they did transmit around 3.790 MHz at around 0900 UTC. They were successful in matching the 100 watt amateur rig to the antenna arrays. I heard them call on 14.220 MHz as PA6FLD working several Europeans. They were especially looking for VK3BLZ around 1300 UTC, so I called them up. Alas I had no success.

From time to time you have probably heard stations with a mode that resembles either a buzz saw or a jet engine. These are utilising the Frequency Division Multiplex (FDM) mode. It consists of 16 channels of RTTY spaced 170 Hz apart, employing a very narrow shift of 85 Hz. It is virtually impossible to decipher these using conventional demodulators, although specific equipment is obtainable in the US from military surplus but is not accessible easily to the radio amateur. Tuning across these buzz saw like sounds, you will hear the RTTY signals, but will find it difficult to separate them into individual channels using your conventional demodulator. Most FDM's are military based, although other users requiring security such as diplomatic missions also reportedly use it.

Another unusual signal that is rarely encountered these days is Piccolo. This consists of several high pitched tones that resembles the flute like instrument of that name playing a fast tune. This audio device was developed by the British in the early sixties and reportedly used primarily on diplomatic traffic.

Most of the RTTY traffic on HF today is either encrypted or encoded for greater privacy. Many utilise Bit Inversion, ie where the mark and space are swapped around in the middle of a word. The number of bits can be many, so unless you happen to known the order of the Bit Inversion, your demodulator will only print up rubbish.

Another mode you will have heard being transmitted on HF is FAX. This is commonly used to transmit weather pictures to marine and other meteorological offices. FAX can easily be identified by their synchronous pulses or "ticking" in one second. You can hear a Japanese Meteorological FAX station on 80 metres on 3.623 MHz most evenings. Michiel Schaay, the Dutch RTTY enthusiast who has compiled a schedule of RTTY press broadcasts, recently announced that he has published a FAX Directory. It has operating times together with frequencies used. I imagine that interest in receiving facsimile pictures will increase now that printers have become more readily available to the amateur. The quoted price for the FAX Directory was around 50 Dutch Guilders plus postage.

Schaay has also announced the publication of a list of US military frequencies. He even has claimed that some of these even issue QSL cards, which I personally find a little preposterous. I would expect that the opposite would be the case, as their transmissions are certainly not designed for the average SWL, for their traffic would be fairly classified. The only military radio network that I do know that definitely welcomes reception reports from the SWL, is the US Armed Forces Radio and Television Service (AFRTS) which is based in Los Angeles.

While accidentally tuning across the bands, I happened to come across Radio Moscow's DX programme. It is aired on Sundays at 0625 repeated at 1225 UTC. The programme doesn't contain any startling tips, concentrating on schedules of other Eastern European broadcasts. Yet it is a little puzzling that gospel and other religious broadcasters are mentioned frequently. After all, I have heard Moscow a number of times state that the state actually encourages atheism!

AR

MARCH'S BEST PHOTOGRAPH

This time the judges voted the front cover as the best photo for March. Henry Lundell VK2ZHE is now eligible for the prize of $100 worth of film and video tapes from Agfa-Gevaert in June.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Meet your new Federal Awards Manager, Bill Hempel VK4LC.

He was first licensed in May 1957 with the callsign VK3AHO. During this period he was farming at Kyvalley, Victoria after retiring from service with the RAAF as a Commissioned Officer, GD Signals with service in Europe, Malaya and Japan.

Many will recall his signal on all bands emanating from his V beams with 228.64 metres on each leg suspended on towers 30.48 metres high, with DXCC on 80 metres and 320 countries on HF by 1970.

Beginning in 1962, Bill undertook the first DXpedition of the month as a member of the Certificate Hunters Club and was the first VK to operate single handed a DXpedition to Wallis Island with the call sign FW8BH, followed by YS1BH, VR1N Ocean Island, CR8BH Portuguese Timor, VK9BH Nauru Island.

Among the many prestigious world wide awards, totalling over 100, two have pride of place. His WAZ-No 8 and the A 1 Operators Award. This indicates his very keen interest in this facet of our hobby.

Between DXpeditions Bill obtained his Private Pilots licence which he still holds.

Following the death of Alf VK3KB, in 1967, Bill took over the position of Federal Awards Manager until a replacement from VK3 was found.

After his stint as a farmer he moved back into the RAAF as a civilian in the Department of Defence, Canberra, ACT where he was OIC of the Air Historical Section for over 5 years until he was promoted to the position of Parliamentary Liaison Officer in charge of VIP Aircraft Records.

He retired to Queensland where he is still up in the clouds at Eagle Heights on Mount Tamborine overlooking the Gold Coast. He maintains regular skeds to Sydney on VHF and UHF, operates Oscar 10 and of course is still chasing those elusive countries on HF.

We wish Bill good luck and success as our FAM.

TAMAR VALLEY AWARD

The Northern Branch of the Wireless Institute of Australia, Tasmanian Division has instituted a new award.

The purpose of this award is to encourage all amateurs to make contact with amateurs resident in the Tamar Valley Region of Northern Tasmania. Short wave listeners may also qualify for the award in the usual manner.

You may qualify for the award in any of the following sections and you may qualify for more than one award.

SECTION 1 — OPEN: By the use of any combination of bands and modes available to the applicant. (Split banding is permitted but cross banding is not except between NAOCP and ALOCP holders.)

SECTION 2 — HF ONLY: By the use of any combination of bands up to 30 MHz available to the applicant.

SECTION 3 — VHF/UHF/SHF: As for Section 2 but above 30 MHz.

SECTION 4 — SINGLE BAND: Any one band of those available.

SECTION 5 — SINGLE MODE: Any one of those available.

SECTION 6 — ALL NOVICE: Contact with Novices only (Including 'K' calls below 30 MHz.)

SECTION 7 — REPEATER: Via in-band repeaters.

SECTION 8 — SATELLITE: Via amateur satellites. Cross banding to HF allowed if permitted under licence terms.

SECTION 9 — SWL'ing: For Short Wave Listeners.

Section 4 and 5 may be combined with other sections.

Applicants must earn twenty points to qualify for the award. Stations can only be worked once for each award.

Points are earned as follows:

CALL AREA	ON HF	ON VHF/UHF/SHF
Tasmania	*1 point (20 stations)*	*2 points (10 stations)*
Australia	*2 points (10 stations)*	*4 points (5 stations)*
All others	*4 points (5 stations)*	*10 points (2 stations)*

Stations in the following municipalities (shires) are eligible as contacts for the award.

City of Launceston
Beaconsfield
Evandale
George Town
Lilydale
St. Leonards
Westbury

Applications in the form of log extracts should show the applicant's Name, Callsign, Section applied

for, Callsign of the station contacted, Date, Time, Band or frequency, Mode and Municipality.

Claims are to be signed by the applicant only. Spot checks may be made with stations in VK7 for confirmation. QSL CARDS ARE NOT REQUIRED.

Only contacts made after 1st September, 1984 are eligible as claims and applications for the award should be made to the Awards Manager, PO Box 168, Launceston, Tas 7250.

A fee of $2 or five IRCs should accompany the claim.

RL AWARD

The RL Award shall be issued by the "Japan Amateur Radio League — Club Zoo" for all amateurs and SWLs who have the proof of 2 way communications (or SWL Cards) with the following stations.

Class AA: 12 QSLs from JA1RL through JA0RL, 8J1RL, JR6RL plus 1 QSL each having RL in suffix from six continents. (Total 18 QSLs)

Class A: 10 QSLs from RL stations in JA (Example: JA1RL) and 8J1RL. (Total 11 QSLs)

Class B: 5 QSLs from RL stations in JA.

Class C: Spelling out "JAPAN AMATEUR RADIO LEAGUE CLUB ZOO" — 30 Characters — with tail-letter of any QSL cards.

Logs: Call sign, Date, Time, Band, Mode and Signal RST.

Fee: 10 IRCs or US $5.00.*

(A physically handicapped person is exempted from paying the Fee)

** 10 percent of the application fee shall be contributed to the UNISEF.*

Endorsement: Single Band, Single Mode

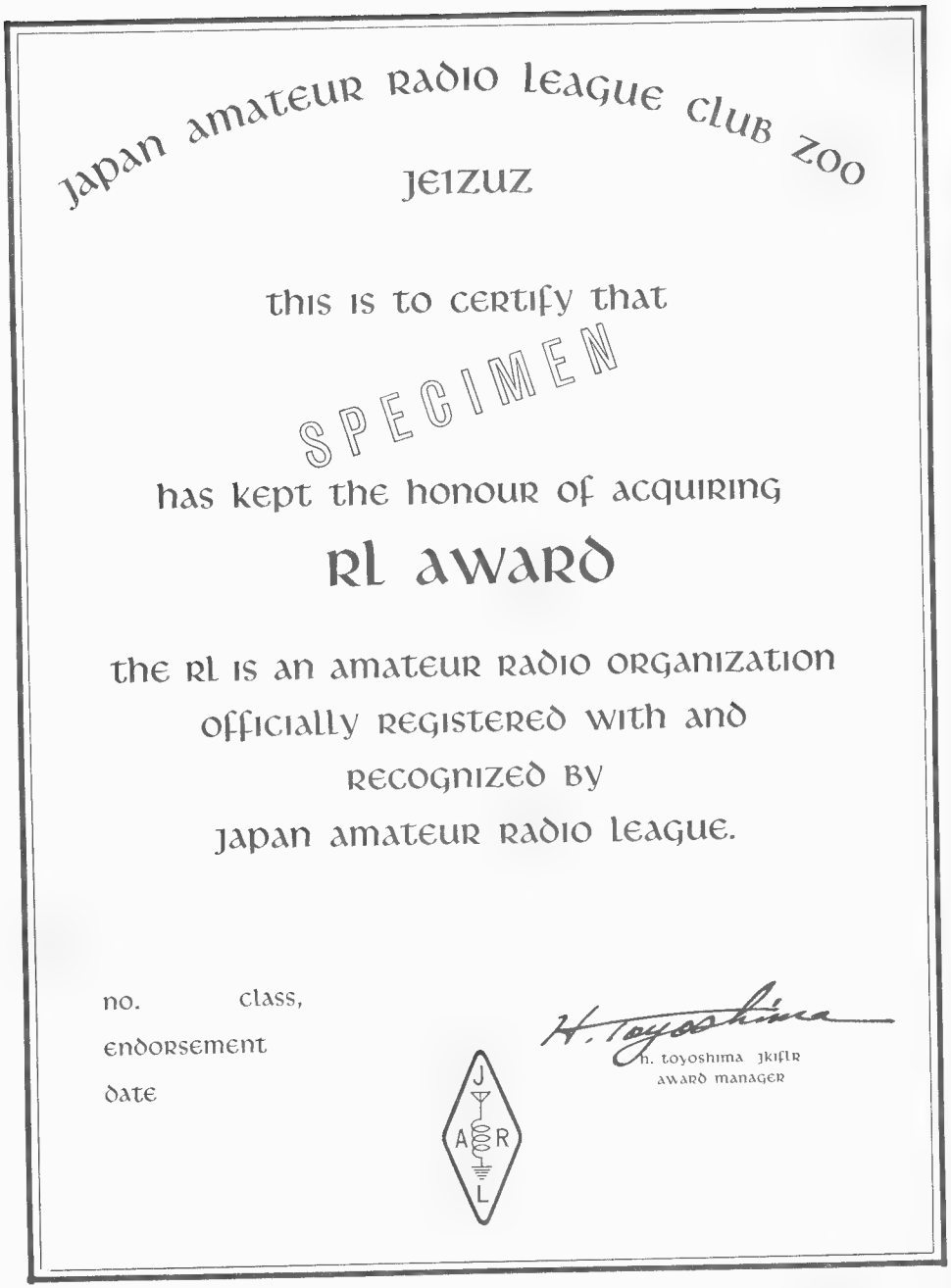
SWL: Same rule

Note: One of the undermentioned Club Zoo members QSL cards can be utilised in place of only one RL station's QSL except Class AA.

Application must be sent to:

Hiroshi Toyoshima
1-8-10, Fujisawa, Fujisawa-city,
Kanagawa-Pref, 251, Japan.

Club Zoo members:
JH1NXU, JH1XUP, JR1CYI, JF1IQC, JG1QZC, JG1XNF, JI1ODR, JI1RPC, JI1RRE, JI1RRM, JI1VLP, JI1XSI, JJ1NII, JK1FLR, JK1GCK, JM1GIQ, JM1GIR, JM1RIG, JO1DJX, JO1NCX, JQ1IUD, JR3RMR, 4S7VL, 4S7EA



BELGIUM WABP AWARD

The award is available to licensed amateurs and SWLs.

There is no date limit.

Do not send QSLs. A list showing full details of the contacts should be verified by the Awards Manager of the National Society.

Any bands and modes may be used.

The fee for the award is 5 IRCs.

The address for applications is:

ON5TO
UBA Awards Manager
PO Box 634,
Brussels, Belgium.

Requirements

Confirmed contacts are required with each of the nine provinces on two bands.

Provinces for WABP Award

WW West Flanders	LX Luxembourg
OV East Flanders	NR Namur
AN Antwerp	HT Hainaut
LM Limburg	BT Brabant
LG Liege	

THE VIENNA AWARD

This award is sponsored to all amateurs and SWLs in two classes.

Class 1: 23 Vienna districts.

Class 2: 15 Vienna districts.

All bands, all modes and mixed. Cards since 1st of April 1954 are valid. The districts of Vienna you will find in the second and third number of the four-digit Zip Code.

Send 10 IRCs and GCR list to: *OVSV, 1060 Vienna, Eisvogelgasse 4, Austria.*

YO-DANUBE RIVER AWARD

This Award is issued for working on two bands different stations located in countries along the Danube River. Federal Republic of Germany, Austria, Czechoslovakia, Hungary, Yugoslavia, Bulgaria, Romania and USSR as follows:

DX stations 3 QSOs with YO and 2 QSOs with other countries.

At least 3 QSOs out of the above mentioned contacts must be with stations located in cities just on the Danube River.

Valid contacts after 23rd of August, are needed together with 7 IRCs or the equivalent foreign currency should be mailed to:— Romanian Radioamateur Federation, PO Box 1395, R-76.100 Bucuresti 5, Romania.

THE REDCLIFFE CITY AWARD

The Redcliffe City Award was first applied for in 1972 by VK2APH, who is the proud possessor of Redcliffe City Award Number One. In February this year Number 490 was issued to VK4MUQ.

Those wishing to qualify and apply for this award need six points for a VK or ZL station and four points for any other international. To obtain these points stations you must contact stations that are members of the Redcliffe Radio Club which are worth one point. The Club stations are worth two points.

The Club stations are VK4RC, VK4VRC and VK4IZ. A list of member stations can be obtained by writing to the Awards Manager, enclosing return postage.

The Redcliffe Radio Club conducts two Awards nets to assist operators and SWLs to obtain the Award. Saturday from 0400 UTC on 21.190 MHz and Wednesday from 0930 UTC on 3.612 MHz.

Members also use these two frequencies on a regular basis for Club traffic at other times including the Sunday Club Net at 0930 UTC on 3.612 MHz.

To apply for the Redcliffe City Award send a log extract listing the stations contacted and enclosing $A2 to cover costs to: The Awards Manager, Redcliffe Radio Club, PO Box 20, Woody Point, Qld, 4019. Short Wave Listeners are also actively sought after.

Contributed by Kevin Jones. VK4AKI Awards Manager, Redcliffe Radio Club.

"VICTORY-40" AWARD

The "Victory-40" award is sponsored by the Radio Sports Federation of the USSR, the E T Krenkel

Central Radio Club of the USSR and "Radio" magazine to commemorate the 40th Anniversary of the historic victory of the soviet people and the Soviet Army in the Great Patriotic war of 1941-1945.

The "Victory-40" award is for radio amateurs all over the world for QSOs (SWL reports) with veterans of the Great Patriotic war and special memorial radio stations from 1st January to 9th May 1985.

Within this period the following prefixes will be used by special memorial radio stations operating from:

— *capital of the USSR: ER*
— *hero-towns of the USSR: EW*
— *capitals of Union Republics: EU*
— *capitals of Autonomous Republics: EV*
— *former centres of partisan warfare: EM*
— *towns decorated with the orders of the USSR for their contribution to the victory in the war: EO*

QSOs with memorial radio stations operating in socialist countries will also count for "Victory-40" award.

Veterans of the war will use their regular call signs plus "R" (For example: UA3DA/R).

To receive the above award one must gain 40 points for QSOs with different memorial radio stations and veterans of the war. Each QSO is valued as follows:
— *5 points for radio amateurs operating in Australia and Oceania.*

The "Victory-40" award will be delivered free of charge on receiving the extract from the log verified by the national amateur radio society or 2 licenced radio amateurs.

Any band and any mode including that through amateur radio satellites will count.

Applications for the "Victory-40" award are to be sent to the E T Krenkel Central Radio Club of the USSR, PO Box 88, Moscow, USSR not later than 1st January 1986.

KARL AWARD PROGRAMME

The following Korean Amateur Radio League (KARL) awards are available to all amateurs and SWLs.

HLA (HL Award). Issued to all who received QSL cards from any HL stations (except HL9s), depending on the number of contacts made (heard) with (from) HL stations (except HL9s). Depending on the number of contacts made (heard) with (from) HL stations, one or more of the following classes may be claimed.

Class K: 5 QSLs Required
Class O: 10 QSLs Required
Class R: 20 QSLs Required
Class E: 30 QSLs Required
Class A: 50 QSLs Required

Stickers for affixing to certificates endorsing additional credits are available in multiples of 50 upon submission of QSL cards.

AKA (All Korea Award): Issued to amateurs/SWLs who received QSL cards from HL stations. At least one from each of seven different call areas, (ie) 1, 2, 3, 4, 5, 8 and 0.

KDN (Korean District Number Award): Issued to amateurs/SWLs who received at least one QSL card from HL stations located in each of the 50 different cities, Guns or Gus in Korea.

The awards will be issued in multiples of 50, (KDN 50, 100, 150) upon submission of cards with list prepared in order of KDN reference numbers.

APA (All Province Awards): Issued to amateurs/SWLs who received QSL cards from HL stations located in each of different special cities and provinces in Korea.

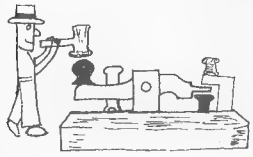
Area codes for each City and/or Province are as listed below:

Area Code	Province and/or City
1	City of Seoul
2	Inchon City, Kyonggi-do, Kangwon-do
3	Chungchongnam-do, Chungchongbuk-do
4	Chollanam-do, Chollabuk-do, Cheju-do
5	Pusan city, Taegu city, Kyongsangnam-do Kyongsangbuk-do

General rules and requirements

1 8 IRCs will be charged per award and 4 IRCs for each HLA sticker.
2 If QSL cards are submitted, they must contain enough IRCs for return postage.
3 Endorsements for such operating distinctions as bands, modes and QRP may be applied for.
4 Proof of contacts/receptions made with any HL stations (except HL9s) on/or after 3rd February 1959 will be acceptable.
5 Proof of contacts/receptions made with US Army stations in Korea (HL9 call area) will not be acceptable.
6 All contacts must be made within the same call area.
7 Mail your application to: Korean Amateur Radio League, CPO Box 162, Seoul 100, Korea.

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

SPEED PRACTICE FOR THE NOVICE OPERATOR

Before any of you real brass-pounders decide not to read the column this month because of its title, please note: *by novice operator I mean one who is new to CW operation — not necessarily a novice in other areas of amateur radio endeavour* — and if you 30 WPM men want to have somebody to work with when all your old mates go QRT for the last time you had better realise you have a role to play in the development of new operators. So read on!

In the November issue of the column I offered to print a "schedule" of operators who would be prepared to commit themselves to operation at a certain time and frequency to provide the opportunity for slower operators to engage in QSOs with operators who would not leave them in the dust. Well, here is the list:
VK3PGY Op: Vic, Freq: 80m, Speed: 7 WPM
Times: Mon-Fri 1300 and 1400, Sun 1100-1200, local time.

That's it. One novice, prepared to help his fellow operators. *Where are all the brass-pounders?* A lot of you read this column, as I can tell from the volume of correspondence (for which thanks). Surely it's not impossible for some of you to set aside a single hour a week (or fortnight) to help the struggling beginner. We all know how easy it is to meet the examination requirement (at least in hindsight) but seem to forget how difficult it is to make the transition from exam-style textual material to competent CW operation on air.

One more chance, guys — send me the details of call, frequency, time and speed range and do your bit!

In point of fact, it should not be necessary for the novice operator to concern himself with finding slow CQs on 80 metres. I will refer once more to the Golden Rule of CW speed — *"Call at the speed you want to work; Answer at the speed of the other station or at your own speed if he is faster."* If everybody does this you will never ask or be asked to QRS.

There is no valid reason for a slow operator to avoid answering a fast CQ, so long as he can read the callsign. If you are looking for a contact, and hear a CQ far faster than your competent speed, by all means answer him — at your own speed. The faster operator is honour bound (by tradition, anyway) to answer any response to a CQ, and to answer at the speed of the responding station if it is slower. If the truth be told, I often call CQ at very slow speeds on 80 to give the newcomers a chance, because I know full well that they will not answer a fast CQ. On those occasions when I *do* get a slow answer to a fast CQ, I have no hesitation in slowing down to the other guy's speed. This results in some funny situations — following the rules means that if I call at 8 WPM an answer should be no faster. Not long ago an unfamiliar full call answered, and we carried on for half an hour before we finally got up to our "natural" speeds.

Of course the slower operator has some responsibilities too. Use of the Q code and *appropriate* abbreviations is good procedure at any time; they are almost mandatory if you are slower than the guy you are working. Words like "THE", "MY", "IS", and any others that are *not essential to the sense* of what you are sending should be left out.

If you have received a 5/9/9 report there is no need to repeat *anything* — not your name, your QTH, or the other guy's report. After all, he has said he can copy 100 percent, and if you mess something up he will undoubtedly ask for a repeat. As a general rule, repeat (once only) if readability is poor. A sign of a good operator is that he will slow down if conditions are less than perfect because a slower speed is still more efficient than repeating. Tom VK4NUN recently wrote to me about this as one of his pet aversions. He was working an American novice at about 4 WPM who sent "QTH IS ALBUQUERQUE, NEW MEXICO, USA". He sent it three times, and poor old Tom was just about asleep by the end of it.

Another of Tom's aversions ties in neatly with what I said above about avoiding unnecessary words. *Why spell out KENWOOD or YAESU when the whole world knows what a TS830S or a FT101E is?*

Just to summarise the main points so far — we need more ops who can make themselves available for QSOs with beginners; slow ops should not hesitate to call faster ones, who in turn should slow down; and slower ops should use efficient (brief) ways of saying things.

One last bit of food for thought. The only place the VK and USA novice allocations overlap is 28.100-28.200 MHz, which rules out a lot of potential slow-speed QSOs. *Why not allow them to operate CW only on 7.100-7.150 MHz? I know every suggestion for increased privileges for novices gets knocked on the head, but this one would cause little or no inconvenience for current users (ie full-calls) and would be a great help to potential brass-pounders. If this idea generates sufficient interest, I'll gladly put it through the proper channels. Expressions of interest (for or against) should be addressed to me at the above address.*

73 till next month.

AR

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from Radio Communication — February 1985

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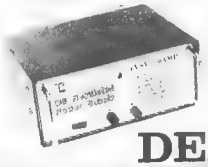

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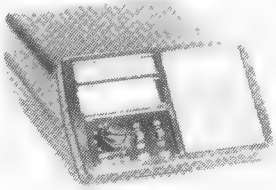

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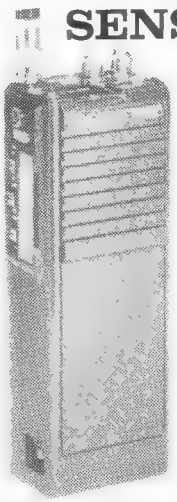

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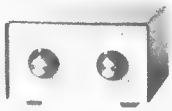

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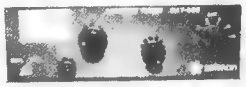

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CLUB CORNER

TOWNSVILLE AMATEUR RADIO CLUB

To help celebrate the WIA's Seventy Fifth Anniversary the TARC are hosting the Seventh Bi-ennial North Queensland Convention from 30th August to 1st September 1985.

Further information may be obtained from the Convention Secretary, TARC, Box 964, Townsville, Qld. 4810.

HUMPYBONG SCOUT GROUP RADIO CLUB

The Humpybong Scout Group, which is part of the Redcliffe District Scouts, have started a radio club that has been issued with the call sign VK4SHB. The Club will be running a Novice Study Course for the benefit of the Scouts and Venturers that are members of the Club.

The Club station will be on air at 0930 UTC every Thursday, except the first Thursday of the month, and the frequency will be 3.612 MHz ± QRM.

The Club hopes to contact other scout groups and interested amateurs to further the aims of the scout movement in the hobby of amateur radio.

Contributed by Kevin Jones. VK4AKI JOTA Co-ordinator, Redcliffe Radio Club.

AR

UPDATES TO CLUBS

Port Adelaide RC — President Donald Hobbs VK5AS, Secretary/Treasurer Harry Hillard VK5PIH, Club Call Sign VK5APC. Meetings every second Wednesday, 7.30 pm at 155 Hart Street, Glanville. Net daily on 28.440MHz 0900 UTC.

Coffs Harbour & District ARC — President Bob Colsell VK2AWA, Secretary Rick Fletcher VK2BKV, Treasurer Peter McAdam VK2EVB, Club Call Sign VK2DVF, Repeater VK2RCH. Meetings 1st & 3rd Wednesday, 7 pm at Orara High, Bray Street, Coffs Harbour. Net on Mondays 1000 UTC. All welcome to nets and meetings.

Lower Eyre Peninsula ARC Inc — President Carol McKenzie VK5PWA, Secretary Jack Kleinrahm VK5AJK, Treasurer Ian Phillips VK5NIK. Meetings 1st Wednesday of month at 8pm, Workshops each Wednesday at 8 pm. Club station VK5ALE. Net each Friday on 3.560MHz at 0930 UTC. All welcome.

AR

MOORABBIN AND DISTRICT RADIO CLUB

The Club has given much thought to ways in which it could assist the Institute on the occasion of its 75th Anniversary.

It has been decided that the Clubs Annual Trade Day, usually a fairly low key event, will be considerably upgraded this year, firstly to bring in other than simply radio aligned activities and also to make it more attractive to the general public, so, hopefully, giving amateur radio and its Australian longevity a wider exposure.

There will be the usual large number of trade exhibitors so that amateurs can have a good look at what is currently on offer without having to traipse all over the place before making their buying decisions.

There will also be other attractions. For example the Southern Archery Club will be giving demonstrations of their Robin Hood skills, and perhaps a bit of 'hands on' experience as well.

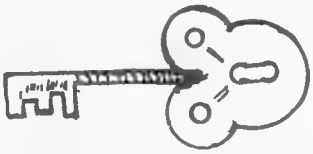
The Fly Fishers Club will be giving demonstrations of casting techniques and the Moorabbin City Band will be playing during the afternoon.

The 1985 Trade Day will be held on Saturday the 13th April at the Combined Clubs Complex on the Turner Reserve, Turner Road, Highett. Proceedings commence at 10 am and go on till approximately 5 pm. During the morning the Mayor of Moorabbin will officially open the event.

There is no charge for entry and all are welcome. There is plenty of off road parking space.

Contributed by Harold Hepburn VK3AFQ
Assistant Secretary

AR



WESTLAKES ARC COMES OF AGE

One of Australia's best known radio groups, the Westlakes Amateur Radio Club, is celebrating its twenty-first birthday this year.

The first official meeting took place on the 22nd April 1964.

We hope to publish the "Westlakes Story" in the near future.

AR

COFFS HARBOUR AND DISTRICT AMATEUR RADIO CLUB

At the Annual Christmas Party of the Coffs Harbour and District Amateur Radio Club, the first presentation of the "PERCY SARA Memorial Trophy" was held. The trophy is awarded for outstanding service to the Club in the preceding year and is decided by nomination and ballot by club members.

The recipient for 1984 was the very popular net controller and "sergeant-at-arms" — Arnold VK2ADA. Pictured is Betty Sara, XYL of the late Percy Sara VK2QV, presenting the trophy to a surprised Arnold.

Betty kindly donated the perpetual trophy to the club and has kept in close contact with members by attending club outings. Arnold and club members operate the Club net on Monday nights . . . 1000 UTC . . . 3.610 MHz.

Contributed by Rick Fletcher, VK2BKV
Secretary,
Coffs Harbour & District ARC

AR

WANTED ARTICLES

Write up your pet project or technical idea so others may share your knowledge through the pages of AR.

QSP

BITS AND PIECES FROM VK4SS

In an earlier Thumbnail, Eddie White VK4EW and VK4OW was described as living alone. Eddie points out that this is not so and that he is happily shoring life with the YF. Long may it be so Eddie.

A Call For Help!! Can anyone please help with photos of the following amateurs, all active in VK4 in the 1930s: Frank Nolan VK4JU, Vince Jeffs VK4VJ, Eric Rielly VK4ER and Bob Campbell VK4RC.

Does anyone have an AOCP exam paper set in the 1930s? Any costs of photostating, postage etc will be gladly met. Contact VK4SS (07) 44 6526 (before 10am) or write.

Please be reminded: The deadline for material for book on History of AR in Queensland is 30th April 1985.

LISTENER NUMBERS

WIA Associate Members are allocated a WIA L-number which allow them to use the QSL bureau service provided through the divisions.

Shortwave listeners have QSL cards bearing their WIA L-number which they send via the bureau to amateur radio stations they hear, particularly those in DX countries.

An Associate unsure of his/her number will find it either in the WIA Call Book or on their AR address label.

Inquiries about using the QSL bureau or how SWLs go about QSLing can be made to your division.

AR

BOOM SALES

Sales of home entertainment equipment in the United States is going through a boom period.

Industry executives at a recent Las Vegas consumer electronics show said there was a growth in demand for new and improved equipment including colour TV sets, video cassette recorders and compact disc players.

The consumer electronics business sold more than $30 billion worth of gadgetry for the home to the American public last year and was expected to sell another $34 billion this year.

AR

EDUCATION WANTED

Brenda VK3KT, Federal Education Co-ordinator, is attempting to correlate a list of all classes teaching amateur radio throughout the length and breadth of Australia. At present she has a list of forty, but surely there must be more.

This list is needed so that when she gets enquiries she may direct the would be amateur to the nearest class or instructor as learning with an instructor is quite often much easier than trying to swat alone.

Brenda also runs an education net on 80 metres each Thursday night, with minimum success. This net is conducted for many reasons but it is particularly a forum for educators to exchange ideas re teaching methods, syllabus interpretation, examination procedures and discuss problems etc. (One instructor may have run into a particular problem which, by discussing it with other instructors, it may not be a problem.)

Do instructors feel a net is worthwhile? Has anyone any ideas at all about educating the would be amateurs? If so please let Brenda know. She is awaiting your letters and calls.

Contact Brenda on the Education Net 3.610-3.625 MHz at 1030 UTC or 3.685 MHz at 1130 UTC or write to Brenda Edmonds via the Federal Office or to 56 Baden Powell Drive, Frankston, Vic 3199.

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

Major activities this month in VK2 include the Conference of Clubs to be held at Amateur Radio House, 109 Wigram Street, Parramatta over the weekend of the 13-14th April. On the Saturday evening there will be the annual fireworks evening at VK2WI Dural. Gates will open at 6 pm. The bonfire will be lit at 7.30 pm and fireworks starting at 8 pm. There will be a limited range of takeaway food available on the grounds. Should you wish to bring your own, please limit it to something which does not require the barbecue. For safety reasons no barbecue or personal fireworks permitted within the grounds. Ticket sales may be obtained in advance from the office at Parramatta or at the gate on the night. Adult $4, children $2 and family $10.

It is expected that the usual function will be held at Urunga over Easter but no details had been received by the time these notes were prepared. During May there is to be a Seminar, most likely the 24th. In June there will be the Oxley Region Field Day at Port Macquarie over the 8th and 9th. This is the Queens Birthday weekend. Headquarters will be the Youth Hall at Oxley Oval. There will be seven foxhunts, a CW receiving contest for both novice and full calls. Other events will be the Home Brew, QSL card, Old Gear, Handy Kink and best presented fox hunt vehicle contests. Don't forget to round up your collection for the disposal sales. There will be further details next month but should you require further information contact Lew VK2LS, Publicity Officer via PO Box 712, Port Macquarie, NSW, 2444. At the end of June, either the 22nd or 29th, the Division will be holding a 75th Dinner. Additional details will be given later and on the Sunday broadcasts.

On 8th February last was an early fireworks display at Dural, when the main tower received a lightning strike. The 70cm repeater suffered the main damage. Most other systems suffered various degrees of damage. Thanks must go to the members of the Dural team who spent Saturday carrying out repairs which enabled the station to transmit on some frequencies for the broadcast on the 10th. It then took Jeff VK2BYY and the other members a couple more weeks to return the station to normal operation. The repairs were covered under the Division's insurance, but it is annoying to have to redo much of the effort previously put into the installation. Still it is a fact of modern life, lightning and semi-conductors don't mix. As far as we know this is the first major lightning damage to the Dural installation since the property was developed.

The Central Coast Field Day at Gosford on 17th February attracted over 750 to the Showgrounds during the day. The day was overcast with a little light rain at times. The area has good cover so it did not worry anyone. There was a good range of trade displays and the disposals area kept all interested. Congratulations must again be extended to members of the CCARC for the hard work put into this annual event.

A range of 75th material — tee shirts, windcheaters, stickers etc. are available from the Divisional Office during the hours of 11 am to 2 pm on Monday to Friday and Wednesday evenings 7 to 9 pm. (Phone 02 689 2417.) There is the usual wide range of publications, including both USA and Foreign Callbooks. There are no Australian Callbooks left but it is now getting near the release time of the 1985/86 edition — expected in the spring. A reminder that now is the time to make any alterations to your entry. Should it be incorrect, write to the Department at PO Box 970, North Sydney, NSW, 2060 requesting the correction and also send a copy to the Callbook Editor, PO Box 300, Caulfield South, Vic. 3162. The same procedure should be followed when you change an address. When you change a call sign this should be notified to the Divisional Office so that the QSL Bureau, the Historian and the records can be amended.

Repeater groups and clubs are reminded that now is also the time to submit any changes to your details in the Callbook. Check the current edition and notify any changes to the Divisional Office. A reminder to repeater groups that should you intend to make any changes to your present system or wish to develop an additional system you should contact the Divisional Office for the necessary assessment forms. Should you send it direct to the Department delays can occur as all repeater matters are referred back to the Division for co-ordination. Applications have recently been received from Armidale and Coffs Harbour to develop UHF repeaters. Port Macquarie is currently relocating VK2RPM to a site which will provide extended coverage along the coast. Newcastle region have indicated interest in developing an ATV repeater and RTTY systems. There is also interest in a 6 metre repeater. Goulburn are in the licensing stages of a 2 metre repeater. Interest has been expressed from Broken Hill to develop a beacon. It is expected that it will be on 6 metres.

The fires in the Orange district early this year stretched the local WICEN group to the limit and additional support was obtained from the Sydney region. The WICEN postal address is being changed to PO Box 123, St Leonards, NSW, 2065. This was the previous Divisional postal address and like any address is taking a long time to be forgotten. There are still a couple of letters a week being received through it. WICEN have available a range of collared tee shirts. White with green trim on the collar and sleeve ends. $11.50 posted.

Does your group or club plan any field days this year? Early notification will help with publicity. The South West Zone will be holding theirs at Wagga over the October long weekend — the 5th-6th.

By the time these notes appear the Division will have conducted the Annual General Meeting. As the notes are being prepared it is a week from the closing date for Council nominations and there are still plenty of vacancies. Like all Divisions and groups it takes many people to carry out the general day to day running — we are always looking for help.

As outlined in last month's notes this year the VK2 Division is collecting material to form part of a year of history. No matter whether you are new or old to amateur radio there may be something that you can contribute. While it is nice if you can present it in a written form like an article for amateur radio, any form of recording will help retain your information. You may prefer to just write short notes, even speak the items onto a cassette tape, it will retain the information. Should you have a photo or slide collection on radio matters, don't forget to write a description on them. You may remember what the subject matter was but in years to come it can be forgotten. Without it, a good photo is just a pretty picture of unknown subject matter.

Jo Harris VK2KAA is carrying out historical research into VK2 call signs and the people who held them. A questionnaire is available both from her or the Divisional Office. To date she has over 8000 cross-referenced entries but naturally some holes still remain. The basic information required is the date you were first licensed and the call sign. Then the dates of any call sign changes that you may have made up to the present time. You might like to include other details about yourself, areas of interest over the years and a photo of yourself, preferably on your own. If it is a group photo indicate which is you and who the other people in the photo are. In turn Jo may be able to help you if you are the recent holder of a call sign. Drop her a note with a SAE quoting your new call — plus any old ones — and she will advise what information there is about your new call — who held it and when etc. Jo has indicated that she may finish the project this year. She intends to write a short article for AR later this year about her research. You can contact Jo at her Callbook address or via the Divisional Office.

While on the subject of collecting what will become historical material, many clubs and groups produce their own newsletters and bulletin but the Division is not on everybody's mailing list. The Divisional Librarian would like a copy of your publication for the Library records. Please add an extra label to your printout.

13th April — Fireworks night at Dural.

27th April — Westlakes ARC 21st Anniversary Dinner Dance

73 until next month. TIM VK2ZTM

AR

STOP PRESS

Uranga Convention will be held over the Easter weekend, beginning the 5th April. Plenty of accommodation is available.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

This month I have been contacted by two entirely unrelated sources, regarding one of our best known VK5s. I am talking about Alf Traeger VK5AX/8XT who, if not known by name, is known world wide as the inventor of the pedal radio, which brought communication — medical, educational, and social — to the people of outback Australia. Alf Traeger was born in Glenlee in Victoria (NE of Nhill) on 2nd August 1895 and died on 31st July 1980. A plaque is about to be unveiled in his memory at Glenlee and I was asked if we could provide information regarding his radio activities. The other suggestion came from the Summerland ARC Lismore NSW, and had been sent to the VK2 Divisional Council who had forwarded it to us. The suggestion is that we should do something to commemorate this famous Australian Radio Pioneer, perhaps with a field-day, a contest, a dinner, or something else. So we would like to hear your thoughts on the subject.

This month will be a busy one for members of the Divisional Council and others. The Clubs Convention will be held over the weekend of 12th-14th and once again our grateful thanks to the ladies who give up their entire weekend to do the catering. Our AGM will be held on Tuesday 23rd at 7.45 pm, and I hope that this year we receive a few more nominations. It would be nice to see some new faces on Council (not that we don't like the old ones!), after all, the more people there are to do the work the less we all have to do!! And if you would like to help but have left it too late to nominate, never fear, there are still some "off Council" jobs to be filled (or we could co-opt you!). Two days later our delegates will be leaving to attend the Federal Convention. David Clegg VK5AMK, has found that being in charge of ESC is a full time job (despite the help he gets from John Crawshaw VK5AJE) and so he has decided to concentrate on that and make this his last time as Federal Councillor. Graham Ratcliff VK5AGR will be the Alternate FC but as Graham is already well "snowed-under" with his jobs as Treasurer and Federal Satellite Co-Ordinator, he is also in no position to take over from David. However, Rowland Bruce VK5OU has volunteered to take over the Federal Councillors job, so he will be going this year as 2nd Alternate, to "learn the ropes". Knowing Rowland I think he will be an excellent choice for the job.

AR

VK3 WIA NOTES

VICTORIA 150

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

MORE WANTED!!

A warm welcome to the following who have recently joined the WIA Victorian Division.

L Allen, J Barrett, Arnold Bennett VK3CVG, Ian Bradley VK5PXA, Elizabeth Campbell VK3PTR, Geoffrey Clancy VK3DNJ, I Coots, Stephen Cotterill VK3CSC, Alfred Coupe VK3CQE, Robert Curtis VK3NRC, Mario Dolfen VK3PIW, Douglas Fairbairn VK3DJY, Frank Feldman VK3DAF, J Ferguson, John Friend VK3ZAB, Victor Hearne VK3PXC, Edward Howell VK3ZKP, John Ingram.

Peter Jetson VK3ZMB, Leslie Jordan VK3PYD, R Joseph VK3VRJ, Ronald Knight, A Knox VK3KEK, John Kuhn VK3PJK, Paul McMahon, Stephen McMillan VK3VNI, M Matthews, John Mayor VK3PTC, Leslie Mighalls, Robert Parsons, Raymond Peverill VK3CVP, Tom Peyton VK3XTP, Phillip Portelli VK3AWG, Andrew Power, Robert Rand VK3PTO, Alexander Robertson VK3VTL.

Robert Seal VK3RS, Karl Siegel, Glen Sneddon VK3YY, Mario Surya YC4FS, J Thurman VK3VGX, W Thurman VK3VGY, Charles Warren VK3CSW, Noel Watkins VK3YNW, James White, Kevin White VK3ZI, Charles Whitling VK3AHP, Charles Williams VK3NCW, Maxwell Wroe VK3YMW, Joshua Silberman, Gil Ben-Galim, Joseph Bonavia VK3PHI, John Belenski W7NEJ.

TIME CAPSULE

As part of WIA 75 activities the Victorian Division is gathering material for a time capsule to be opened in 25 years time — the Institute's centenary year.

Any member who would like to contribute material or ideas should give a little thought to what could be interesting to those WIA member's who open the capsule in the year 2010.

SUNDAY BROADCAST

The WIA broadcast on Sunday at 1030 local time through VK3VWI has changed its 40m and 80m frequencies — they're now 7.130MHz and 3.615MHz both SSB.

These changes were necessary to avoid interference from a foreign broadcasting station on 7MHz and to clear 3.600 MHz which is used by WICEN.

Other frequencies in use by VK3BWI are 1.840MHz (AM), 52.525MHz (FM), 144.200MHz (SSB), 146.850MHz (VK3RMM) or 146.700MHz (VK3RML) when VK3RMM is required by WICEN.

CAMPAIGN 3000

The Division ended 1984 with a good level of membership and had a flying start to 1985 boosted by a membership recruiting drive.

Special thanks to those individuals, clubs and zones who have supported the WIA by encouraging others to join the Institute.

Your results are to be seen in the now regularly published new members list appearing in the VK3 notes. See last months AR for the first list.

As an extra incentive a year's free membership will be given by this Division to any member or club who recruits in any seven month period, five new members.

There are two main things to remember when asking non-members to join:

1) The services provided through the Victorian Division for members.

2) The WIA our national radio society supports you and your hobby — you should support it by being a member.

Adequate printed material suitable for recruiting both new members and attracting people to our hobby is available through the WIA Public Relations Officer, via the VK3 Wireless Institute Centre.

WIA 75 AWARD

This award to mark the Institute's 75th Anniversary began last month — see details in March AR magazine.

Listening around the HF bands and repeaters, WIA members in VK3 have been caught up in the spirit of the award and are freely giving their WIA membership number when asked, or are chasing numbers themselves.

To make the award a success, every member should have their membership number ready to exchange.

Even if you've never gone in for award chasing previously, during the remaining nine months of 1985 give it a try and log the required 75 WIA members to qualify for the WIA 75 Award.

RESULTS OF VK3 TWO METRE SCRAMBLES — 1984

The Scrambles are held each second Sunday evening at 8.30 pm on 144.250 MHz USB. Any licensed radio amateur is welcome to take part.

Throughout 1984 51 stations took part in 21 Scrambles. Call signs and total points follow.

Outright winner with a score of 63 points was Rob VK3XQ. He was presented with the Eastern Communications Trophy by Jim VK3PC, VK3 Divisional President. The connector in Jim's hand is a perpetual trophy donated by Lionel VK3NM.

Call Sign	*Total Points*		
		VK3KMA	2
VK3XQ	63	VK3XSA	2
VK3BOD	60	VK3XLH	2
VK3CGH	49	VK3ZLQ	2
VK3BBU	36	VK3AEK	1
VK3DSI	24	VK3AKQ	1
VK3YDE	22	VK3CNX	1
VK3ZEO	21	VK3CKD	1
VK3AVA	20	VK3DCA	1
VK3YGO	17	VK3DWM	1
VK3YRP	16	VK3COD	1
VK3BQR	15	VK3DXI	1
VK3BMV	14	VK3GI	1
VK3NM	13	VK3KAQ	1
VK3XBA	10	VK3CGC	1
VK3XDP	9	VK3KTC	1
VK3ZXY	8	VK3KXW	1
VK3XYX	7	VK3VF	1
VK3BH	6	VK3NZ	1
VK3KIR	6	VK3YGU	1
VK3AZY	5	VK3ZY	1
VK3YLN	4	VK3ZFA	1
VK3YYR	4	VK3YWZ	1
VK3BDL	3	VK3ZHP	1
VK3CPC	3	VK3ZYS	1
VK3AQR	2	VK3ZZN	1

Contributed by Peter O'Donnell VK3BOD

AR

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Les Cullen, VK2WU
Contester

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VK4 WIA NOTES

Guy Minter VK4ZXZ
FEDERAL COUNCILLOR
Box 638, GPO, Brisbane, Qld 4001

ONE AMATEUR'S 1984

Rob Green VK4KUG, can look back on 1984 with some satisfaction. He started the year as VK4NBJ, studied hard and entered a competition. The prize for the devotion to study was a new callsign and for the competition, a trip for two to Bali in Indonesia. Not only did Rob pass that examination, AOCP theory, he also won the competition, but the story does not end there. He was notified of both his successes on the same day! By chance, all this excitement coincided with a visit by Kanji JA1TBX, to Rob's place of work. Kanji is an electronics engineer and is head of research and development at the Hochiki Corporation, makers of heat and smoke detectors for fire alarm systems, in Japan.

Rob Green VK4KUG tells Kanji JA1TBX about his good fortune.
Photograph courtesy of Bud Pounsett VK4QY.

While Kanji was in Brisbane, Rob took him home to meet his family and sample Australian cooking and our lifestyle. At Rob's home, Kanji was able to talk to his boss, Shoji JN1PEO, and two other friends, a YL, Adachi JN1QNG and Shishida JH1HPH on 15 metres SSB.

So 1984 was quite a year for one Queensland amateur, a licence upgrade and an enjoyable free trip to Bali.

TOWNSVILLE AMATEURS BIG ON PUBLIC SERVICE

With the more common usage of VHF transceivers for the boating fraternity, the Coast Guard found themselves needing to expand their services, and so it was that Barry VK4BH as co-ordinator for this purpose approached the TARC for help. It was ultimately decided to allow the Coast Guard access into our repeater site, and that a yearly rental would be charged.

John VK4AFS and Barry VK4BH did the actual installation of the equipment. Unfortunately there were a few bugs to straighten out, but all went well for the grand opening. In preliminary tests, things were working out very well with one contact with a boat at Cape Bowling Green, and then at midnight the same day from the Whitsunday Passage. It certainly augers well for the future.

At the official opening ceremony, Bob VK4WJ and Jeanette represented the TARC. Bob said later that it was a very pleasant afternoon, with the Mayor, Alderman M Reynolds and Mr Doug Taylor of Philips (Brisbane) performing the necessary ceremony.

Guests were invited to view the ATV being broadcast from Mt Stuart where Ian VK4ZT was transmitting pictures of the actual site, and the equipment and aerials, etc . . .

The actual equipment consists of a UHF link from the Coast Guard to Mt Stuart and the messages are retransmitted on VHF to the shipping. Four channels are available.

From TARC "Backscatter"

PRESIDENT'S REPORT 1984

In presenting this Annual Report I would like to thank first my fellow Council Members for the tremendous work they have put into the running of the affairs of the Queensland Division of the WIA.

Secondly, my thanks to all Members for their continuing support.

In effect, one can say that 1984 was more or less a year of consolidation and learning, since quite a few new Council Members took up their positions for the first time. As Guy Minter VK4ZXZ, the Immediate Past President, stated in his 1983 Report, Council continued to maintain an even-handed approach to its decisions, many of which were guided by the results from the highly successful 1984 Radio Club Conference.

COUNCIL

Your Council Members for 1984 were:
Harold Bremerman VK4HB, Ken Ayers VK4KD. Alan West VK4KWK, John Aarsse VK4QA, Bud Pounsett VK4QY, Theo Marks VK4MU, Bill Dalgleish VK4UB, Val Rickaby VK4VR, Ross Mutzelburg VK4IY, Ross Marren VK4AMJ, Hugh Shaw VK4BHS and David Jerome VK4YAN.

Barry Ker VK4BIK, continued as ex-Officio Council member for Publicity and as Convener for the General Meetings.

Others associated with Council were:
Dave Richards VK4UG, Membership Secretary, Gordon Loveday VK4KAL, VK4 Intruder Watch Co-ordinator.

MEMBERSHIP

Membership remained constant compared to the 1983 figures probably because of the fairly bad examination results we've had during 1984.

It appears that very few "students" enrol while studying for their examinations, waiting until they have received their much awaited call before joining the Institute.

A reason for the small growth in membership can also be attributed to present economic climate, with so many of us out of work. A survey, conducted earlier this year, disclosed that many of those interviewed had been members of the WIAQ, but because of unemployment, found it hard to continue.

EDUCATION

There is not much progress to be reported in this field. Ron has been in regular contact with the Federal Education Officer, questioning various aspects of the examination standards. In this, he was ably supported by our Federal Councillor, Guy VK4ZXZ and Ross VK4IY, who took every opportunity to discuss examination matters with Brenda, while at the Federal Convention.

It is hoped that in 1985 we may resume our programme of "Training the Trainer", which was a very successful venture way back in 1983.

OUTWARDS QSL BUREAU

Bill Dalgleish VK4UB took on the job from Mick and Chris Bentley VK4AMB, VK4ABM. He is still at it, so must like it to be able to assist the Institute and its members in this vital part of Member Services.

The new system of including the address label from "AR" with your cards as proof of membership works fine and is a great help to Bill. Saves him going through reams and reams of computer print-outs to check on membership status. After all, you pay for the service indirectly and it would be a shame if someone else bludged on you.

INWARDS QSL BUREAU

Dr Murray Kelly VK4AOK, and his band of helpers have a very difficult task to perform. Although many complaints have been received, one must not forget the following:

(a) The number of licensees changing their call sign in a very short period of time is very high indeed. Considering the fact that many overseas QSL cards take up to two years to arrive in Brisbane, imagine the traumatic experience to go through one, two or even three year old callbooks to find out who belongs to what card.
(b) Despite numerous requests for updating of new calls, with the inclusion of the previous call, very little response was forthcoming.
(c) As a suggestion, if you are a member of a radio club, or if you live near an area with a radio club, why not ensure that your QSL card from overseas also includes your QTH. This will make life of sorting the cards by QTH much easier and speedier. Certain overseas QSL bureaux actually make this a mandatory requirement.

NEWS AND INFORMATION SERVICE

This very important service is very well maintained by Bud and Bonnie Pounsett VK4QY and his (x)YL, and Jack Gayton VK4AGY, with his faithful band of helping rebroadcasters. The call back lists are steadily growing, an indication that more and more take the trouble to notify net control that they have listened to the "News". Our News Service reaches beyond the boundaries of VK4-land, as many of the HF call backs show.

Besides correlating the News, Bud also prepares the VK4 notes for *Amateur Radio* and *QTC*.

PUBLICATIONS

Anne Minter VK4KZX continued to manage the WIAQ Bookshop. Although there appears to be a drop in the number of students, the sale of books continued to maintain a steady flow. There are a few problems in receiving books from overseas, mainly in the area of Custom clearance and collection from the wharves.

Even the "bookshop" is hit by the present economic situation. Many prices will have to be increased in 1985, due to the unfortunate fluctuations of the Aussie dollar. Sales through the clubs have increased to the extent that the bulk of sales is now done via the clubs.

INTRUDER WATCH

This is a typical "Churchillian" department.

The sweat and blood of so few in defence against so many intruders.

It is often said that we are fighting a losing battle. This is correct, because there is just not a battle going on. Just a few little "Davids" against all those "Goliaths" and a lot of non-participating spectators. What can you expect? All the same, the Intruder Watch Service does get results. It is only with certain stations that problems exist.

VHF/UHF ADVISORY COMMITTEE

1984 saw a small change in this Committee. Ross VK4AMJ was the Council liaison officer, with Paul VK4ZBV and Brian VK4RX the principal committee members. Some minor problems were encountered but, generally, all questions and requests were more than adequately dealt with.

HISTORIAN

Due to family commitments, Peter Brown VK4PJ tendered his resignation as Official Historian of this Division. Council accepted this with deep regret as it leaves a gap which can be filled with great difficulty, specially since Peter "specialised" in the field of amateur radio prior to 1930.

The material that Peter collected through the years has now been stored in a special store room, accessible only by two Council members, so if anyone has material of historical importance, please contact Council. This material will eventually be taken over by the proposed Technology Museum. Certain negotiations have already commenced and are continuing.

The period after 1930 is the "baby" of Alan Shawsmith VK4SS. He is continuing the good work of Peter by providing AR with regular Thumbnail Sketches of pioneer amateurs from 'yesteryear'.

During the latter part of 1984 Alan undertook to compile a history of amateur radio in Queensland as part of the 75th Anniversary contribution of the VK4 Division.

AWARDS

John Moulder VK4YX continues to be the VK4-Award custodian and reports that there was a slight increase in applications. Many interstaters are becoming interested, so are quite a few overseas amateurs. It's a very difficult award to gain.

CONTEST MANAGER

Joe Ackerman VK4AIX still looks after the VK4 contest side. The 1984 Jack Files Memorial Contest drew this year many more log entries than ever before. This is a good sign and bodes well for 1985.

WICEN

Ken Ayers VK4KD continued as State WICEN Co-ordinator for the fifth year running and reports that the North Queensland Regions were called out by SES on a number of occasions to assist with extra communications.

In the Southern Region, Ipswich took part in an exercise with their local SES and performed so well that they have now become an integral part of SES Ipswich CD plan. The Gold Coast area and the Southern part of Region 4 also participated with SES on a number of occasions. Various events during the year kept up the operational expertise of WICEN members to a high degree of efficiency.

Final preparations have been made to a WICEN Handbook for VK4 WICEN operators and the publication should be ready in 1985.

We thank the VK2 WICEN organisation for their assistance in using their handbook as a guide.

TREASURER'S REPORT

This Report will be issued separately. The figures are all well within budget and Ross Mutzelburg VK4IY is to be congratulated for a job well done.

It is with regret that Council accepted Ross' resignation with effect as from the 1st of January 1985.

Thanks for a sterling job, Ross.

RADIO CLUB CONFERENCE

Under the firm hand of Dave Jones VK4NLV the 1984 Conference proceeded smoothly and, as usual, provided your Federal Delegates with much needed support.

It is gratifying to learn that the VK5 Division has had a "trial" Club Conference in 1984 along the lines of our own Conference.

Being one of the original instigators of the original concept of the Radio Club Workshops, way back in the middle '70s, I am very proud with the way this concept has developed. Perhaps, in the not too distant future, this Annual Conference may achieve the same "power" as the Federal Convention, albeit on State level, along modified lines of the famous "Arnold Report".

This year's Conference was honoured to have as its special guest the new Secretary-Manager of the WIA, Reg Macey.

I understand that his impressions of the Conference were very favourable.

FEDERAL REPRESENTATION

On behalf of Council and Members I would like to express my thanks to Guy VK4ZXZ and Ross VK4IY for the tremendous amount of work they have done to present this Division's viewpoint to Federal Executive and the other Divisions.

The 'easy' days of yesteryear have gone and the present requires a business-like approach to the many problems confronting the amateur fraternity in this day and age.

Our relations with Federal Executive are very cordial and our approaches are always attended to in a most effective manner.

THE FUTURE

The immediate future, 1985, will be devoted to the celebration of the WIA's 75th Anniversary. Some plans are in the process of being executed, others will be announced as the year continues.

On an international level, it appears that WARC 1999 may not be WARC 1999, but instead, could well become WARC 1990. Thus the time is NOW to get ready for this all-important conference. The future of amateur radio depends on the co-operation of all amateurs to achieve what we would like to have. WARC 1979 proved that, in no uncertain terms.

CONCLUSION

Due to circumstances beyond my control I was not able to visit many clubs, as much as I would have liked it. So, clubs, specially those in the regional centres, please accept my apologies.

Finally, I would like to thank you all again for your support — the Members, the Clubs, Department of Communications and my fellow Council Members.

May 1985 be even more successful than 1984.

Signed: John Aarsse, VK4QA
President, VK4 Division
AR

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
35 Whynot Street, West End, Qld 4101

ARTHUR R BURTON VK4FE (SK)

The life of this amateur typifies the Australian way more than most. He was certainly prepared to give anything a go — and go anywhere to do it! Arthur VK4FE obtained his AOCP in Brisbane in the year 1936; he operated firstly from the Valley and then from the suburb of Dutton Park. His main interest in AR was DX which he worked aplenty.

During WWII he enlisted in the AIF (15th Div) and saw action in the Middle East, Greece and Crete. When Warrant Officer Burton was being evacuated from Crete his ship the HMS York was bombed and sank. Seeing the white ensign still flying at her masthead, he swam back and retrieved it — an act typical of the dare-devil Aussie soldier. The battle-scarred flag, 16ft x 18ft, was subsequently donated to the Navy and hung in the Petty Officers Mess, Alice Street, Brisbane.

After his discharge from the Service he joined the PMG Department, then in 1949 he successfully applied to be a member of The National Antarctic Research expedition to Heard Island. His official tasks were those of W/O and maintenance of all diesel and other machinery. This work load was considerable. The gourmet may be interested to know that the tinned food diet on Heard Island was supplemented by the delicacies of liver and steak of sea elephant, the breast of petrel and skua bird and penguin eggs. The latter are about the size of a turkey egg and, to the palate of VK4FE, tasted similar to a hen's egg. The bondwood huts were twelve sided double-walled in construction, in order to offer maximum resistance to the wind. During the height of a blizzard it took a quarter of an hour to crawl between huts.

Arthur was the first Australian amateur to venture into the Antarctic and anyone holding his QSL for this sojourn to Heard Island now possesses a collector's piece. On his return to VK he took up the position of PMG Broadcast Technician on Thursday Island and shortly after was transferred to Normanton on the Gulf of Carpentaria, where he remained until 1964.

VK4FE retired to the Gold Coast where he played an active part in organising the Coastguard. He was a member of the Gold Coast AR Club and remained active on the bands right up to the time of his death on 30/11/82. He had an endless variety of tales to tell; the fraternity is the poorer for his passing.

AR

JACK FILES VK4JF (SK)

Who was Jack Files? It is only natural that those fairly new to amateur radio would want to ask this question about one whose name is perpetuated by a yearly contest.

Jack VK4JF obtained hia AOCP in 1933 and from that time until his death on 20th July 1968 (WWII excepted) he was engaged in honorary duties of one kind or another for the WIA (Qld Div). Pre-1939 he held more than one council position; one of his early tasks was to write the WIA notes for the very popular weekly "TELERADIO" magazine and there is also reference to his position as code instructor in the AOCP classes.

When the Institute was re-formed post-war, he was again elected to council and in the year 1949 became Inwards QSL Officer for the VK4 Division. Eventually he was responsible for both VK4 QSL Bureaus (Inwards and Outwards) and he discharged these tasks with considerable efficiency and reliability for well over a decade and a half. The job of librarian was another of his many services to the fraternity.

VK4JF's personal amateur activities centred largely around DXing — mostly on CW. However, he always found time to compete in field days and contests of the day.

By nature Jack was an amiable, unassuming type of person, one who lived up to the 'amateur code' in every way. It is only just and right that the VK4 Division saw fit to organise a yearly contest to honour the memory of one who gave thirty-five years of unselfish service to the Institute — and with no thought for his own gain.

May the Sunshine State Jack Files Memorial Contest (VK4) grow annually in strength. I urge all to pay their respects by participating. There's a section in it for everyone. Good Hunting!

AR

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

NO NOVICE

May I point out that one of your articles in Amateur Radio stated that there was no novice classification in America?

I received a letter stating that they have five classes — Novice, Technician, General, Advanced and Extra.

Novice and Technician allows only code CW on 180 — 10 metres frequencies; these two classes can use 80, 40, 15 and 10 metres MCW. Technicians can use 2 metres.

Yours faithfully,
Alf Gover, VK4NAD
42 Salisbury Street,
Buranda, Qld 4102
AR

UNWARRANTED AND SHAMEFUL

Recently I made a purchase through "HAMADS", having been assured (interstate telephone call) that the item was complete and in working order. On receipt of my purchase, a dipmeter, I found one coil was missing.

I contacted the seller only to be told that the value of the missing part was about 10¢ — not worth the 'phone call. On reminding him of his earlier assurance that the instrument was complete, he became somewhat flustered and ruffled, suggesting I could easily make such a coil.

When I pointed out that I was a newly-licensed novice with no expertise in instrument construction, he bellowed "p... off" and replaced the receiver.

I can only conclude this unwarranted and shameful outburst was triggered by a guilt complex, based on a planned disreputable and unprincipled transaction.

Sincerely yours,
Frank Walsh
74 Hawthorndene Drive,
Hawthorndene, SA 5051
AR

DO YOU REALLY WANT MORE AMATEUR RADIO OPERATORS?

Last year, with encouragement from my wife, I studied for and obtained my limited call.

After the ignorance shown to me on the Adelaide 2m repeater both of us wonder why I bothered.

I thought I only had to pass the DOC examination to join the "friendly" amateur fraternity, but there appears to be some other requirements needed to join the "drive time radio group" who monopolise this repeater.

After studying the operating conventions of repeater use, I called every day for a week, including seven times in one day. Not one of the many VK5 operators deemed it worth their while to welcome a new operator.

I point out to this group that 2m is possibly the first contact a 'Z' call will have with other amateurs. If you do not want any more amateurs — so be it. But by your attitude you have wasted my time, and undermined the efforts of the WIA Education Department.

To those people reading this and saying to themselves, "It is different on HF", I point out that most of the group of which I refer, are full calls and I cannot see that changing their frequency is going to change their attitude. Please correct me if I am wrong.

Perhaps I should have given up and sold my equipment, but I suspect others before me have done just that, and that is why the situation now exists.

To those inactive operators who still have their trusty handys, I say dust them off and show me and possibly a few other disillusioned operators how amateur radio is indeed a friendly hobby.

Before I am admonished for daring to question the status quo note that I care enough for my hobby to write this letter.

Finally, to those few gentlemen still with the spirit of amateur radio at heart, who answered my calls and in so doing, made me feel that this letter is not a waste of time, I thank you.

Yours faithfully,
B R Scholz VK5ZSB
39 Longview Avenue,
Belair, SA. 5052.
AR

RECOGNISE THE RIGHTS

Referring to the letters from Dave VK2BBT (Sept 84) and Sam VK2BVS (Feb 85) and EMC in general.

The survival of the international agreement which allocates spectrum space for amateur "research, investigation and instruction in the art of radio communication" and the supporting national laws and regulations to ensure proper useage of the allocated space is proof that communities continue to recognise the "rights" of radio amateurs.

We are often reminded that ignorance of the law is no excuse and those citizens who are ignorant of the laws applicable to the operation of amateur operations should not be excused. Amateurs who take the trouble to explain to a complainant the proper procedure for them to obtain redress of their complaint are behaving generously and commendably but they well do their fellow amateurs a disservice by extending their generosity to a suspension of operations beyond the time required to prove that their transmissions are within lawful limits (a fortnight should be enough).

Amateurs have contributed significantly to the development of techniques to immunise electronic equipment from unwanted radio reception, and application of these techniques now ensures a high degree of probability for a successful remedy for any EMC problem. It is now up to the non-amateur citizens to exercise their "rights" as consumers and demand that adequate immunity to unwanted radio reception be a legally enforceable performance characteristic of radio and TV receivers and other electronic products.

The use of higher power amateur transmitters does not pose insoluble spectrum management or technical problems and we should not evade the challenge (new challenges are a bit "light on" these days).

Yours faithfully,
Lindsay Lawless VK3ANJ,
Box 112,
Lakes Entrance, Vic 3909.
AR

FAKE!!!

I would like to draw all amateurs' attention to the fake antenna matcher "Maxcom" which is made in the USA.

This unit performs as a good dummy load. Refer QST, November 1984, pp 53 & 54.

BEWARE.

Yours faithfully,
Geoff Campbell VK2ZQC,
279A Victoria Place,
Drummoyne, NSW. 2047.

EDITOR'S NOTE:

The product review by QST describes in detail the sealed and potted construction of the four Maxcom models rated for 200, 500, 1000 and 2000W PEP. External electrical measurements, supported by Xray photographs, show the units to be toroidal balun transformers shunted by high power load resistors. SWR was measured as better than 1.4 on all bands to 30 MHz, with no antenna connected! At prices from US$600-1000 these are expensive dummy loads.

AR

BE HEARD!!!

I heartily support Sam Voron VK2BVS in his letters in AR regarding higher power for amateur novices even though page 50 of the February issue indicates the Federal WIA does not support the matter.

If we are looking for more members for our WIA institution then this attitude by the Federal body needs to be remedied so that they represent all amateurs —novice and full call alike.

It is up to all amateur novices to write to their delegates for this concession to be presented at the next convention on the 26th-28th April as well as access to 2m operation on a similar limited basis we as novices enjoy on restricted bands.

After all, our USA counterparts, with many more amateurs, have had their power limit extended, then why not Australia?

Considering our remoteness in the world today, more power in DX competitions must encourage more people to enter amateur radio as well as assist the amateur novices.

73,
R A Davey VK6NND,
12 Lillian Street,
Cottesloe, WA. 6012
AR

SOUTH AFRICAN 6 METRE AURORA PROPAGATION TESTS

Tests stopped at the end of November 1984 but will be continued from the beginning of March 1985 until May. They will again be conducted from 1700 to 1900 UTC every night of the week and special skeds on Friday and Saturday nights from 2200 to 2400 UTC. We will concentrate mostly on the six metre channel of 50.600 MHz but will try two metres if the conditions are suitable. There are four coastal regions which will participate and each area will transmit, for a period of 15 minutes, a beacon signal with their identification. For example, Durban region will transmit during the first 15 minute period of the hour, followed by the East London region, and at half past the hour, region Port Elizabeth will take over until quarter to when the Cape Town region will complete the final 15 minute slot. This process is repeated during the next hour. We are of course all beaming towards the magnetic South Pole. So far we have heard the other regions on (1) Meteor Scatter and (2) on Backscatter after midnight. We have already heard signals from ZS2CO of East London, on (3) what we believe to be traces of Aurora signals with very deep ripple. These signals we have only heard after midnight on a few occasions when Aurora activity was present at the South Pole.

Any interested amateur may contact me directly. We are also interested in conducting direct skeds on other forms of propagation on say 50.100 MHz CW or SSB, over weekends, ie Saturday and Sunday mornings between 0400 to 0700 UTC. Times will be arranged with interested parties.

Mike Bosch ZS2FM
PO Box 1614,
Port Elizabeth, 6000
South Africa

PS The group consists of ZS1ABD, ZR2EC, ZS2BE, ZS2CO, ZS2FM, ZS2NR, ZS2OD, ZS5AV, ZS5CU, ZS5QM etc.

AR

ATTENTION OLD, OLD TIMERS

I am a radio astronomer and historian of science currently writing a book for Cambridge University Press, based on a decade of research, on the early development of radio astronomy. Some draft pages give the story of the important role in the discovery of the radio sun which amateur radio operators, particularly in England, played during the late 1930s. During the solar maximum of 1935-7, many of them,

in particular Denis Heightman G6DH, studied the strange hiss often associated with the newly recognised phenomenon of sudden shortwave fade-outs. Although these studies convinced them that the sun was somehow responsible for the hiss, their antennas lacked the directivity required to demonstrate that the shortwave radiation was being emitted directly by the sun, and that it was not a secondary effect, say, of particles from the sun. It was not until World War II that James Hey, in embattled England, finally did (accidentally) make the definite discovery of radio waves emitted by a great solar outburst in February 1942.

I am writing to ask whether readers of Amateur Radio could send me any further information on detection and study of this hiss before World War II, in particular for the previous solar maximum in the late 1920s, when I have heard that the hiss was indeed picked up by amateurs, but I have no specific citations or other testimony. (By the way, R A Ham [this is his real name!] has written an interesting article on the work of Heightman and other amateurs: "The hissing phenomenon", J Brit, Astronomical Assn 85, 317-23, 1975.) I would appreciate it very much if readers send any information, in particular from the late 1920s, to me. Thank you very much for all assistance.

Sincerely yours,

Woodruff T Sullivan, III
Associate Professor of Astronomy
University of Washington,
Seattle, Washington, 98195, USA

AR

CONSIDERATION

I am anxious to see what feedback you get from readers of AR to this letter.

Because of the microscopic print you are now using in Amateur Radio, I am unable to read the magazine without the most extreme eye discomfort.

This debars me from valuable technical information, interesting articles and information from advertising.

I quote as typical examples from the December issue (1) The Annual Index pages 42-43 (2) the ICOM advertisement page 23.

Your earnest consideration of this problem would be greatly appreciated

Yours truly

N A Loffman VK2APL,
27 Low Street,
Mount Kuring-gai, NSW, 2080

AR

PUTTING THE AWA MTR-25A ON 52.525

The article in November AR, page 17, I feel can be simplified. Following is my article from "QRM".

Firstly if you mix on the high side the oscillator chain remains unchanged.

By placing additional capacitors across the originals it saves the problem of removing the existing ones.

Apart from that the article was very good.

In no way do I wish to criticise the original by VK3ANP. There are approximately 20 sets operating along the NW coast of VK7 on 52.525 MHz.

73,

Joe Gelston VK7JG,
Box 1311,
Launceston, Tas, 7250

These radios are available for around $15.00. With about one hour's work you can get them going on six metres. If you are not familiar with the set, you will need a handbook. The receiver will go as soon as it is modified. However, the transmitter is a little off tune and will require a test meter to tune it correctly. The receiver oscillator remains unchanged, ie mix on the high side. If possible, check the radio before modifying it as a lot of them are U/S. Fit an additional 18pF capacitor across C2, C8, C11, C16, C18. Increase coupling capacitors C10 and C17 to 3.3pF. Replace the RF head and the radio should work.

The transmitter takes a little longer but is just as simple.

$f_{xtal} = \frac{f_e}{24} = \frac{52.525}{24} = 2.18854$ *spec D63.*

Receive xtal $- \frac{f_e + 10.7}{2} = 31.6125$ *spec D66.*

Fit a 220pF capacitor across C6, C21, C22.
Fit a 33pF capacitor across C13.
Fit 100pF across C26.
22pF across 12BY7 grid coil.
10pF across 12BY7 plate coil.
18pF across 12AQ5 plate and grid coils.
10pF across 6883B grid coil.
Rewind plate coil to 10 turns.
Align radio as per handbook. The receiver should receive .5 µV for 20dB quieting. The transmitter power is 20 watts at 13 volts for 150mA plate current. Adjust deviation to ±5 kHz.

AR

YOU ARE A RADIOAMATEUR

You are having a trip or planning a stay in New-Caledonia.

You would like to get a temporary amateur station licence.

For any information please contact the Telecommunications Exploitation crew, Post and Telecommunications Office of New-Caledonia, 14 Edouard Glasser Street, Motor-Pool — NOUMEA.

AR

NEWS FROM AUSTRIA

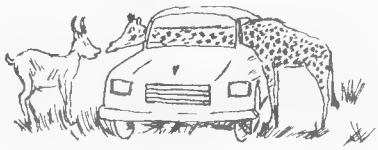
The OVSV reports changes to the amateur radio regulations for Austria.

1. **Operation on the 160m band:**
   Additional allocation from **1.850-1.950 MHz** on sec basic, max output power 100 watts, restricted for A1A (CW) only. This new allocation is presently terminated by end of 1985.
2. **Additional allocation** between **2305-2320 MHz** on sec basis, terminated by end of 1988.
3. **Additional allocation** between **10.368-10.370 MHz** on sec basis, power limitation 40 dBW. Operation terminated by end of 1988.
4. Operation-permission for licensed radio amateurs without CW examination on the 2m band between 144.025-144.100 MHz for training purposes only. This regulation is terminated as a test-phase by the end of 1985.
5. According to the recommendations of IARU region 1 conference — Cefalu CW identification on the beginning and the end of RTTY, FAX and SSTV transmission is no longer obliging.
6. For **mobile operations** on frequencies higher than 30 MHz a **simplified** form of the **log-book** is permitted. The simplified form **has to** contain:
   (a) Used frequency band
   (b) Route or operation area
   (c) Begin and end of the mobile operation.
   All other information may be omitted. This rule does not apply for portable operation or operation from a fixed location.
7. The use of radio amateur equipment with a nominal frequency range from 143.400-148 MHz is now permitted. Any operation (transmit **and** receive) outside 144-146 MHz is **strictly** prohibited.

Dr Ronald Eisenwagner, OE3REB
President of OVSV

AR

NOTICE



ALL copy for inclusion in June 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd April.

TRAVELAW

Paul Rodenhuis VK2AHB will lead another "Electronics Tour" of Japan, following the highly successful tours of Sept and Oct '84. This tour will follow the same route, combining sightseeing of traditional areas with factory inspections where the latest technology will be on display.

HIGHLIGHTS INCLUDE:—

1 *Japan Electronics Show in Osaka.*
2. *Factory tours at ICOM, National, Mazda and Toshiba.*
3 *Sightseeing in Kyoto, Hiroshima and Tokyo.*
4 *Tokyo Disneyland.*
5 *Shopping for parts in Akihabara, the "Electronic City" of Tokyo.*

★ Departure date 19th October 1985 — returning 2nd November 1985.

The cost of $1890* includes return air fares, tours, Bullet Train travel and accommodation for thirteen nights on a twin share basis.

*Current price but subject to currency fluctuations.

For further details write to:—

Paul Rodenhuis VK2AHB,
Travelaw
7th Fl, 130 Phillip St, Sydney 2000
Phone 233 8442, 233 8483

AR85

For QSL Cards

Phone
(03) 527 7711

Williams Printing Service Pty Ltd

12 William Street,
BALACLAVA 3183

CONTACT US FOR QUOTES

AR85

Silent Keys

It is with deep regret we record the passing of —

PETER B DODD	VK3CIF
04.03.85	
GEOFF FREW	VK3PM
8.12.84	
JACK GRUBB	VK4IZ
26.12.84	
SHIGETAKE MORIMOTO	JA1NET
ALEX MURRAY	VK2FM
23.01.85	
GEORGE NAFTZINGER	W4PPC
DON TAYLOR	VK5DX
21.01.85	
K E WILSON	VK5YZ

Obituaries

GEOFF SAMUEL VERNON FREW VK3PM

Geoff passed away on 8th December 1984 after a long illness. He will be sadly missed by all in the amateur fraternity and his many friends in the electronic industry.

He was first licensed as VK3PM on 24th April 1928. Geoff was a dedicated experimenter and in 1928 won a contest run by the Victorian Radio Transmitters League for experimental work and communication on 10 metres. In 1928 10 metres was virtually unknown and to work over long distances was quite an achievement on this band.

During WWII Geoff was a design engineer in the Special Products Laboratories of Radio Corporation developing equipment for the Army and Air Force.
manufacturing specialised equipment for industry and Government Departments. During the early 1960s the CSIRO licensed him to develop and market their world-wide patents for Atomic Absorption Spectroscopy.

Geoff retired from an active business life in the early 70s and in co-operation with the Australian Academy of Science founded the Geoffrey Frew Fellowship to provide for a noted fellow to visit Australia every 18 months to present scientific papers on physics and chemistry.

Geoff did not renew his amateur licence after the war, until 1969, with the callsign VK3JK, but on 4th August 1971 he regained his original call of VK3PM.

His great interest was experimenting — concentrating on antennas and feed systems. He gained much satisfaction in practical tests on air, particularly on the ANZA net on 21MHz.

Geoff was a gentleman and a brilliant and practical engineer who always found a solution to any problem. He was a wonderful person to work with, ever helpful and patient in giving help and information to the team.

Sincere sympathy is extended to his wife Thel and family.

John Heine VK3JF

FREDERICK ALEXANDER MURRAY VK2FM

It is with deep regret to advise the passing of Alec VK2FM on 23rd January 1985. Alec was born in Scotland on 26th September 1907. At the age of nine, he journeyed to Australia with his family and settled in Melbourne, where his father took up a senior position with Metropolitan Vickers. Like many young boys of that era, Alex experimented with wireless.

Alec then settled in Sydney in the Mosman area and took out the call sign VK2FM. For many years, he was CW only. After a jibe from the late VK2BG Bruce, Alec then built a modulator. From that time on, he was almost exclusively phone. His voice was well known overseas, particularly in the USA.

Alec built a home and settled in Carramar. Soon afterwards, it was followed by the erection of a tower and a 2 element beam and the DX hunt was on.

After retiring from work, Alec finally moved to Blayney. A tower and beam were built and back to DX again.

To Emily, Ronald and his family, brother Doug and sister, Olive, all of Alec's friends extend their deepest sympathy.

K J Ledsam. VK2ST

SHIGETAKE MORIMOTO JA1NET

It is sad to report the passing of Shigetake Morimoto at the age of 77.

He was one of the IARU observer team at WARC 79, helping the IARU team achieve success at the Conference. He also participated in the second Regional Conference in Tokyo 1971 and the fourth in Bangkok in 1978.

He first became interested in amateur radio during his high school days in the early 1920s. He took part in the foundation of the JARL in 1926.

During the past decade he made considerable contributions to the promotion of amateur satellite communications in Japan, acting as president of JAMSAT and chairman of the JARL satellite committee which has been playing a very important role in launching the JAS1 satellite planned for early 1986.

He was an internationally minded person. He participated in several CCIR meetings in the 1960s and 1970s and was Japanese delegate at WARC 59 and WARC in 1971.

His contribution to CCIR was such that he was one of the recipients of a special award that was presented as part of the celebration of the Fiftieth Anniversary of CCIR.

The amateurs of Region III have lost a great contributor to amateur radio.

David Wardlaw. VK3ADW

GEORGE NAFTZINGER W4PPC

George's on air enthusiasm and daily example contributed to the development of the Australian Traffic Network and received a commendation from President Reagan for initiating and maintaining the International Assistance and Traffic Network. George W4PPC became a silent key on 5th February 1985.

George through his activities has had a big impact on Australian amateur radio because his daily example 1981-85 had shown many how one can enjoy one's hobby and help others at the same time. He would telephone the US State Department and the Office of Disaster Assistance whenever a problem struck some part of the world and offer the facilities of amateur radio. When hurricanes hit the Caribbean, during the Grenada crisis and when communications were cut to El Salvador, George and the net were there.

Many Australians will remember George because his net was the gateway for daily US, Canadian and Australian third party traffic over all those years.

George initiated the first Simulated Australian Emergency Test which has become an annual event for evaluating emergency message handling capability within Australia and with the US and Canada. George also arranged for Australia to be involved in the US National Communications System exercise which resulted in the ARRL and NCS including amateur radio in the national US emergency communications plan.

He will be remembered by all of his friends on the ATN.

Sam Voron. VK2BVS

DON TAYLOR VK5DX

It is with deep regret that we announce the passing of Don Taylor VK5DX on 21st January 1985 after a long period of failing health which culminated in a stroke. Don had not been on air for approximately 10 years due to a loss of hearing.

He was licensed sometime prior to 1932 as VK5DX, and was one of a group of amateurs who broadcast programmes, including playing records, on the broadcast bands. Even in those days he was known as "the voice in the Black Forest" (Black Forest being the suburb of Adelaide where he lived and not the "rare DX" that many hoped they had found when they heard him!) and the title stayed with him for the rest of his life.

In April 1932 he was nominated to the VK5 Divisional Council and in May that same year was appointed 'Official 200 Metre Publicity Officer'. He held the title of Technical Director in February 1933 but resigned in July '33. Don is survived by his wife and five children.

Jenny Warrington VK5ANW

welcome here

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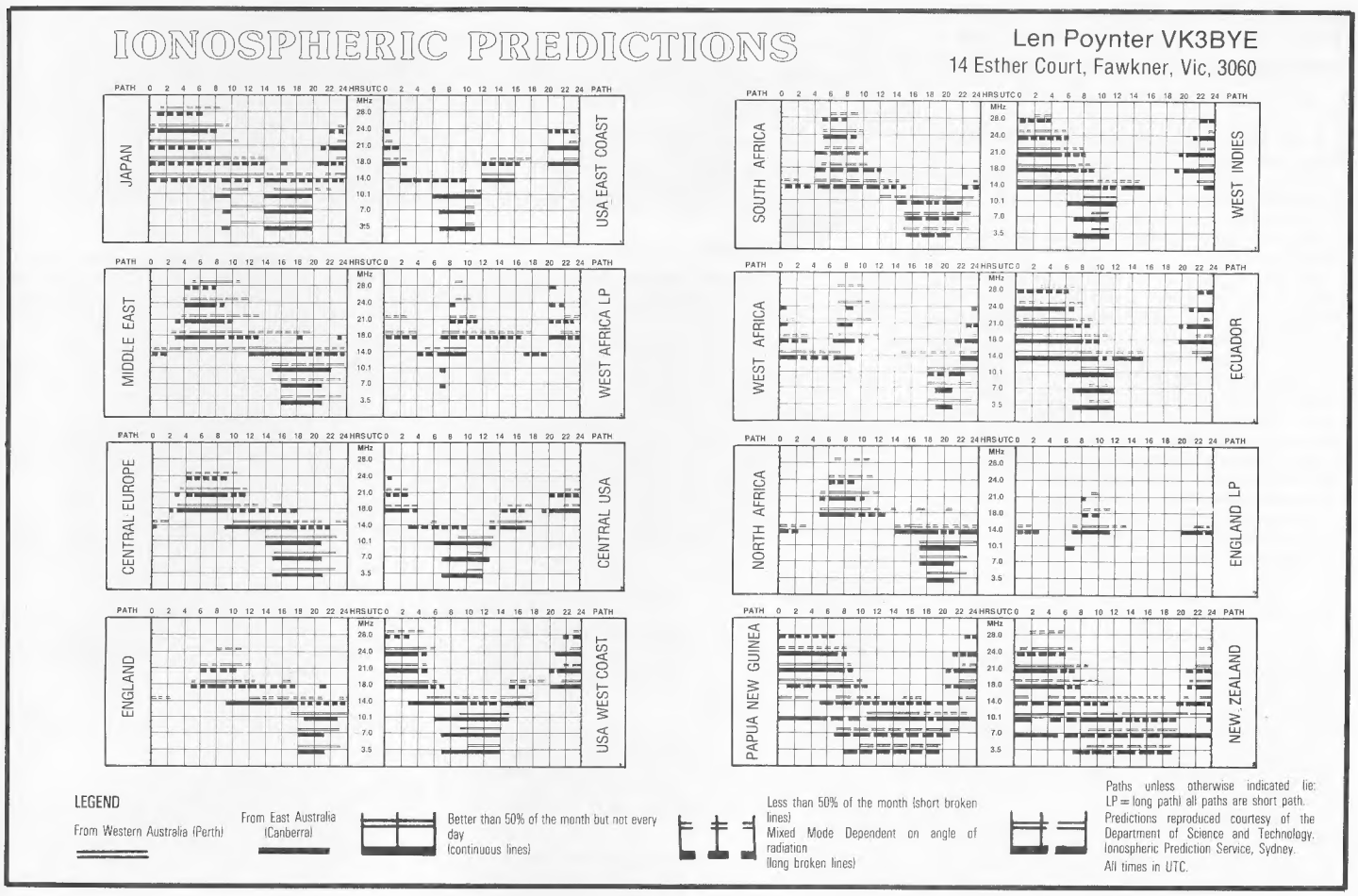
Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



Bill Plans His Project

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

All things considered, Bill Blitheringtwit now felt he had accumulated sufficient bits and pieces to enable him to get busy and build himself a brand new super duper power supply to replace the old one which, owing to the injudicious application of a glass of beer, was now defunct. He knew where to find the case: it was still lying underneath his workbench and still contained the shrivelled remains of some beetroots he had pulled up several years before and then forgot where he had put them. The rest of the items were scattered here and there amongst the general junk, but shouldn't be too hard to lay his hands on.

The only thing was that he was not too happy about these transistor devices. They looked so small and helpless, compared with the good old bottle, as he referred to valves. With a bottle you could do all sorts of horrible things to it and it wouldn't complain. And Bill could truthfully say that he had certainly put his bottles to a severe test over the years. But a transistor . . . He had heard that they were rather fragile, like Dresden china, and didn't like thinks like a bad SWR, or too much heat. Bill wasn't sure he could quite cope with this.

For Bill was "a full power at all times man". You hear them on the bands occasionally, particularly on the lower frequencies. To reach a station only a few miles away they use 400 watts and turn up their speech processors so as to make their voices almost impossible to distinguish from speaking into a milk bottle. On each side of their frequency for some considerable number of kHz it is impossible to insert a humble call sign because of the frightful splatter. They talk constantly of the number of years they have held their licence and mumble (if you can understand them) of current licence holders, who took the multi-choice exam, getting their licences with the aid of the appropriate number of Weetie packet tops.

So Bill, who was also a "tuner upper" on full power, was not sure how he would go with a power supply functioning with these new fangled transistor things. He knew that if you gave them plenty of heat sinking you were usually OK, but he had not forgotten the incident with the 120S some little while earlier. This unit he had borrowed for a couple of nights, after giving an assurance that no harm would come to it. In the brief time he had the device, Bill had managed to turn the finals into smouldering wrecks, merely by dint of prolonged and persistent tuning into his apology for an antenna. Such tuning, it should be mentioned, was bang over the top of a weekly net, which did not appreciate this at all and must have been relieved when the poor little 120S eventually expired.

Anyhow, Bill, if nothing else, was a trier and even he realised that valves were really things of the past, dearly as he loved them for their sweet and forgiving nature.

Then there was the regulation system. The puny device handed to him at the Richard Smith emporium didn't look capable of regulating anything! His old power supply had one that used to turn a lovely shade of blue when things were going well! This miserable object with its three spindly legs didn't look able to stand up by itself, let alone anything else!

All the same, Bill was determined to have a shot at putting all these ineffectual components together and to build himself a modern and up to date power supply so that he could once more get on the air and call up his cronies. That is, when they were available, for the air had a habit of mysteriously going very quiet whenever Bill hit his microphone button. He made a mental note to find out some time why this was so, although, at present, the reason quite eluded him.

Climbing into his oldest overalls, Bill set about gathering the bits to begin his newest project.

HELP US TO HELP YOU OR THE TWENTY QUESTIONS GAME!!!

Information is now being sought for alterations and updates to the 1985-86 WIA Call Book.

Is your call sign, name and address correct in the current issue?

Do you know an amateur who is not a member of the WIA whose information is incorrect?

Is your radio club or group information correct — not only in the call sign listing but also in the Club Directory?

Has your club or group any planned activities which could be entered into the Calendar of Events or are the awards managers/addresses of you club correct in the Awards pages?

If you are a member who requires your information suppressed from the call sign listings it is beneficial and preferable to re-submit your request, stating your call sign and the information to be suppressed. Please use a large sheet of paper — A4 or similar — as small shopping notes have a habit of becoming mis-placed or lost in the large volume of paper work concerning the Call Book.

Don't leave it to SOMEBODY ELSE — act now. All information is required by the last day of April at the Federal Office.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

□ WANTED — ACT □

SEMI AUTO BUG — OK 100 or similar. Reasonable price please. Tel: (047) 36 1969. 8am-8pm.

□ WANTED — VIC □

OLD WIRELESS SETS. Parts and books before 1939 for historical restoration purposes. Genuine collection for Geelong Radio & Electronics Society Museum. Contact Bill Bond VK3BWS, QTHR. Tel: (052) 93 337.

DRAKE SPR-4 or R-4C COMMUNICATIONS RECEIVER. Reasonable price or will swap for Icom IC-R70 new in box. Tel: (052) 48 1410 AH.

FT-221 VHF TRANSCEIVER. Details, price & condx to Craig VK3CMC ex VK3KCC, QTHR. Prefer Melb area for inspection & pick up.

RADAR COMPONENTS. ASV, Rebecca, Eureka, Oboe, ASB, APN-2, Tailend Charleys, H2S, Orange Putter & assoc radar components & handbooks. Tel: (03) 337 4902.

TRANSVERTER. Dick Smith K-3134 80-11m. Cheap for aspiring novice. Condx & price to Jeff L30409, QTHR. Tel: (03) 546 3940 AH.

□ WANTED — QLD □

ARTICLE which appeared in QST December 1982 on MUF predictions. Contact Charles VK4AKE, 43 Sussex Street, Hyde Park, Townsville, Qld 4812. Tel: (077) 71 2254.

CONVERTER FOR KENWOOD TS-520S. DS-1A, DC-DC. Colin VK4NWP, QTHR. Tel: (07) 356 9816.

PENDAGRAPH HANG-DOWN MOVEMENT SEMI-AUTO (BUG) MORSE KEY. Will pay good price. Also a Buzza product bug key. VK4SS, 35 Whynot Street, West End, Qld 4101. Tel: (07) 44 6526 before 10am.

TEKTRONICS 543A OSCILLOSCOPE MODULE INSERTS. Details to John VK4SZ, 10 Tulip Street, Innisfail. Tel: (070) 61 3286.

□ WANTED — WA □

CONVERTERS for SSTV to fast scan & vice versa. Commercial or home brew. Working or not. Roly VK6OZ, 51 Westwood Street, Bunbury, WA 6230. Tel: (097) 25 8066.

□ FOR SALE — ACT □

FT-107 TRANSCEIVER, ext VFO, CW narrow filter & YM-38 desk mic. Very good condx. $900 ONO. Richard VK1UE, QTHR. Tel: (062) 58 1228.

□ FOR SALE — NSW □

GELOSO G4/225 TRANSMITTER. CW, SSB, DSB, AM, 80-10m. Large illuminated dial, with spare valve. $120. Geloso 94/216 rx. 4 xtals, preselect, phasing, S meter. An excellent comms rx with spare valves. $150. Monitorscope Yaesu YO-100 with leads etc for aligning. Full information. $150. Freight extra. See pics p41, Jan AR 1982. Bargain for novice operators. VK2ATE, QTHR. Tel: (02) 61 2725.

HEATHKIT HW-8 QRP CW TRANSCEIVER. As new. Has 4 bands & built-in additions incl SWR meter, audio amp, S meter & 21MHz preamp. Full documentation. $170. VK2BTI, QTHR. Tel: (02) 871 8394.

ICOM IC-701, PS-701, ICRM-3 CONTROLLER. All in excellent condx. $700. Macrotronics RTTY interface, software (cassette & disk) for Apple, MDK-17 modem. All cost over $500, sell for $200. Roger VK2DNX, QTHR. Tel: (02) 546 1927.

MAGAZINES. Lack of space causes the disposal of old QST & AR mags. Readers may like to fill the gaps in their collection for the cost of postage. AR: Jan 1981-Dec 1983. QST: Jan 1981-July 1981, Feb 1982-April 1982, Jun 1982-Dec 1982. VK2BBW. Tel: (02) 871 5087.

SUPER KEYBOARD MFJ-496 & MFJ-53 AFSK/FSK MODULE. CW, Baudot, ASCII, 256 character buffer mem, programmable & auto messages. Morse practice modes 5-100WPM. Auto imcrementing message serial numbers. 1-99 second repeat function. Perfect working order. $420. Laurie VK2II, QTHR. Tel: (02) 99 3993.

YAESU FT-107M. All options incl memories, CW, AM filters plus scanning handheld mic. Original condx. $750. Also w'shop manual & 2 extender boards for testing etc. $80. VK2DJH. Tel: (043) 24 7630.

□ FOR SALE — VIC □

AMATEUR BAND 2M TRANSCEIVER. FM-1677, 25W mobile, ch 2, 4, 8 and 40, handbook & mounting plates plus spare unconverted tx. VGC. $70 ONO. Beckman WWV rx, xtal locked. 1st IF 1600kHz, 2nd IF 50kHz, covers 2.5, 5, 10, 15, 20 & 25MHz. 13 valve. Audio filters provide 400, 600 & 1000 cycles opt spkr. F/s meter. VGC plus handbook. $70. Tel: (03) 337 4902.

AMATEUR RADIO MAGAZINES 1980-84. 60 copies VGC $30. Unidyne 1A replica rx (1920), headphones VGC. $90. Yaesu FRG-7700 rx. FRA-7700 preamp, 12 ch, mem unit, AC-DC, manuals, etc. VGC. $500. Jeff L30409, QTHR. Tel: (03) 546 3940 AH.

ASTATIC. Model 977 dynamic mic by the makers of the D-104. Designed specifically for SSB with sharp cut off each side of voice frequencies. 2 slide switches for low or high impedance & normal or VOX operation plus push to talk switch. Used only few hours. $95. Roth Jones VK3BG. Tel: (03) 870 3333.

DECEASED ESTATE. TV sweep generator. Model PM-5334 in mint condx with probe kit, leads, manuals. Orig price $745. Sell $350 ONO. CTV Pattern Generator, model PM-5509. Mint condx, probe kit, leads, manuals. Orig price $773, sell $350 ONO. Bill VK3BWS, QTHR. Tel: (052) 9 3337.

KENWOOD TS-930 with auto tuner & WARC bands. $1600. John VK3WZ. Tel: (03) 523 8191 BH or (03) 557 1771 AH.

RTTY, ASCII, AMTOR, SYSTEM with Ohio computer. 40k RAM, 64 column screen, single disk (5.25"). Output to ASCII printer, loop supply (T-100) system, save/input from audio tape, save/input from disk. Modem has CRO tuning, ST-5 & ETI 730 demods. Software inc lots of amateur radio programmes, word processor, data base system, forth, games etc, EPROM burner. $590, will separate. AMTOR MKII board from G3PLX populated. Not completed or tested. $100 ONO. Clive VK3BUS, QTHR. Tel: (054) 26 1233.

TS-520S. Good condx includes 2 spare valves — 6146B. $450 ONO. VK3DQS. Tel: (03) 791 2947.

□ FOR SALE — QLD □

COLLINS RECEIVER/TRANSMITTER 75S-1, 32S-1. Combination inc spkr/power supply. Cables, manuals etc. All in EC. Features Skytec Tubster solid state valves in all except tx driver & PA tubes. $825 ONO. VK4EL. Tel: (079) 28 6074.

FT-77 with WARC bands & FM $500. FT-290R almost new $300. IC-22S $150. Ross VK4IY, QTHR. Tel: (075) 65 1445.

YAESU FT-107 DMS, FC-107, FV-107, YM-38. Mint condx. $950 ONO. Approx 10 hrs tx. Going mobile. Graham. Tel: (077) 43 4917.

□ FOR SALE — TAS □

ICOM IC-RM3 COMPUTERISED REMOTE CONTROL. Suit Icom IC-211, IC-701. $100. Icom IC-PS20 AC power supply. $200. VK7ZGA, QTHR. Tel: (003) 31 2845.

TH3-JR 3EL TRIBAND ANTENNA. Rotator, control, cable etc. Hills 45' wind-up tower in 2 sections. Ex condx $600. Negotiable, will separate. VK7GF, QTHR. Tel: (002) 49 1919.

ANSWERS NAOCP TRIAL EXAM May 1983

1	a	11	b	21	b	31	a	41	d
2	c	12	b	22	d	32	c	42	b
3	d	13	c	23	a	33	d	43	a
4	a	14	c	24	d	34	b	44	c
5	a	15	a	25	c	35	a	45	b
6	d	16	c	26	a	36	d	46	a
7	c	17	b	27	d	37	a	47	d
8	d	18	c	28	d	38	c	48	a
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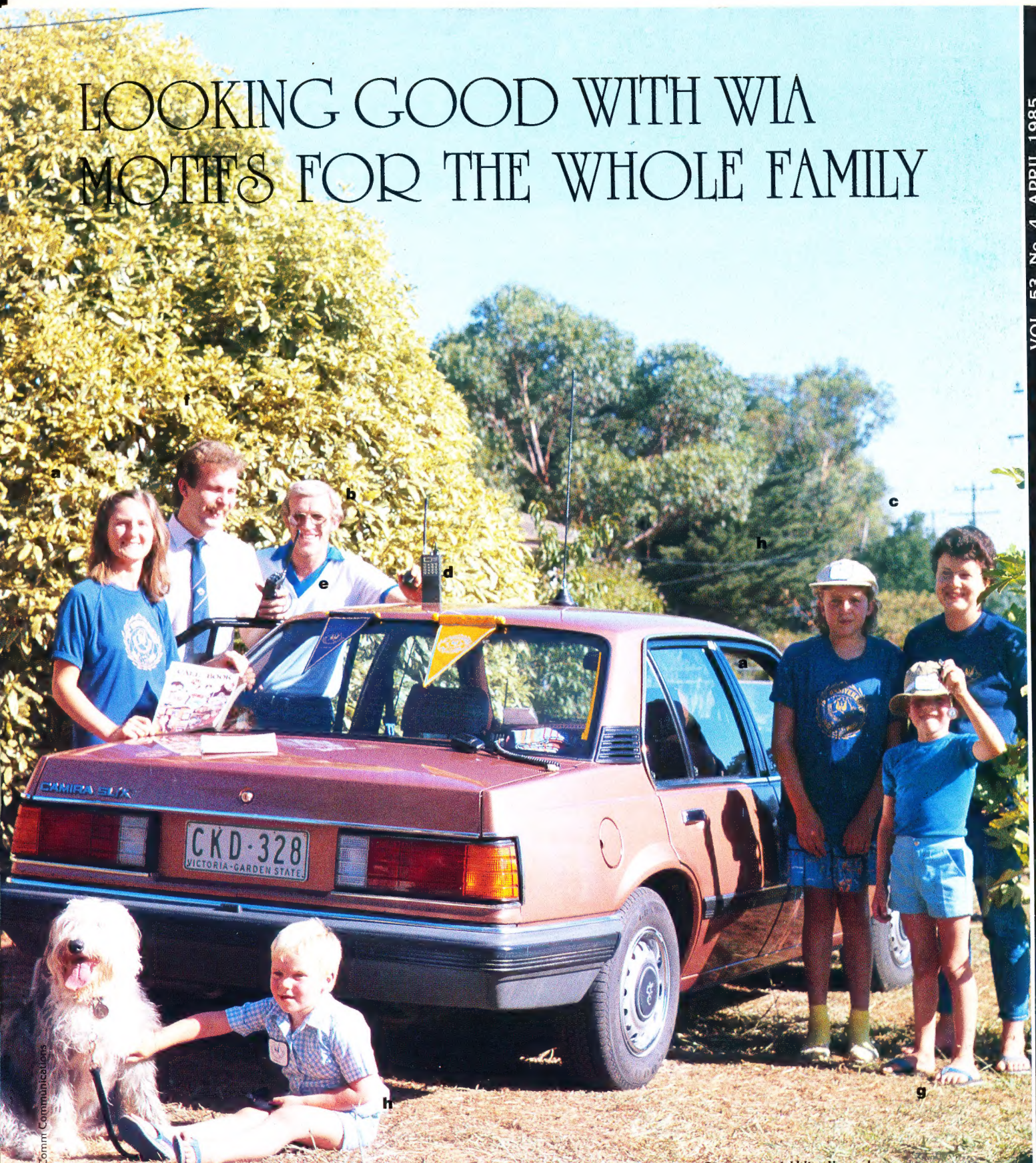

These WIA items are available from WIA Divisional offices. T-Shirts, Leisure Shirts and Windbreakers are available in chest sizes 85cm to 115cm.

a T Shirts with the 75th Logo $8.00
b Leisure Shirts with the WIA Logo on the pocket $11.00
c Windbreakers with a small WIA Logo on the breast $17.00
d Satin Pennants with the WIA Logo $6.00
d Satin Pennants with the 75th Logo $6.00
e Felt Pennants with the WIA Logo $4.00
f WIA Ties $9.50
g Key Ring $3.50
h Cloth Badges $2.50

All prices plus postage and packaging.

Radio equipment courtesy Am Comm Communications

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